PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Vol. 110, No. 11 Thursday, March 14, 1940 Price Ten Cents

Chicago Firm Negotiating for Patten Mill

Kaukauna, Wis., Reported Negotiating With Chicago Firm To Sell Former Patten Paper Co. Mill—W. C. Wing, Jr., Formerly With Fox River Paper Co. Forms New Firm — Mills Tolls Approved.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 11, 1940—Since an option under which the City of Kaukauna, Wis. offered to sell the former Patten Paper Company, Limited, mill to a new corporation known as Outagamie Mills, Inc., did not materialize, negotiations are now being carried on with a Chicago paper manufacturing company whose identity has not been revealed.

Officials of the Chicago company conferred with the city council of Kaukauna last week and made an offer on the property. The deal was discussed in a closed session, and action was deferred until the council meets again March 19.

The city acquired the mill when it purchased the Patten water power site for the erection of a new municipal hydro-electric plant, and has been endeavoring to find a company to take it over. The proposal offered by Outagamie Mills, Inc., headed by Milford J. Taylor, Appleton, Wis., was to modernize the mill and have at least 25 men employed by February. No action was taken by the proposed purchaser. It is reported that Outagamie Mills, Inc., is a joint party with the Chicago concern to the present negotiations.

New Paper Firm Organized

Incorporation papers have been filed for a new company at Appleton, Wis., to be known as Paper Mills Corporation. The incorporators are Elmer R. Honkamp, attorney, William C. Wing, Jr. and Dorothy Wing. Mr. Wing was associated with his father in the Fox River Paper Company until its sale a year and a half ago. While details have not been revealed as to the company's plans, its purpose is defined as engaging in the sale of paper and the manufacture of "several newly developed grades and types." The office will be in Appleton.

Tolls to Paper Mills Approved

Reservoir tolls to paper mills and power companies have been approved by the Wisconsin Public Service Commission for the last six months of 1939, with $128,687.61 for the Wisconsin Valley Improvement Company, and $109,214.20 for the Chippewa and Flambeau Improvement Company. These represent maintenance of dams and reservoirs to control and provide uniform water power flow for the mills.

Wisconsin Valley company tolls are: Wisconsin Public Service Corporation, $32,965.31; Rhinelander Paper Company, $2,018.17; Tomahawk Pulp Company, $925.66; Tomahawk Kraft Paper Company, $3,718.83; Wausau Paper Mills Company, $563.40; Marathon Paper Mills Company, $3,871.77; Mosinee Paper Mills Company, $3,306.32; Consolidated Water Power and Paper Company, $28,899.72; Wisconsin River Pulp and Paper Company, $8,268.97; Whiting-Plover Paper Company, $187.28; Nekoosa-Edwards Paper Company, $19,804.90, and Wisconsin Power and Light Company, $24,157.28.

Chippewa and Flambeau company assessments are: Flambeau Paper Company, $12,213.29; Lake Superior District Power Company, $12,687.08; Cornell Wood Products Company, $4,384.11; Northern States Power Company, $67,434.49; Eau Claire Dells Improvement Company, $12,495.23.

Badger Mills File Labor Complaint

A hearing will be held March 15 at Marinette, Wis., by the Wisconsin Labor Relations Board on a complaint filed by Badger Paper Mills, Inc., Peshtigo, Wis. The company accuses eight workers of coercing other workers in violation of the employment peace act. The mill employs 400 persons.

Southern Kraft Gives Land to City

The Southern Kraft Corporation, Marinette, Wis., has deeded to the city a strip of land 20 feet wide on the bank of the Menominee River. The shore will be riprapped and the area will be landscaped as part of a city improvement program.

More Funds for Forest Laboratory Requested

An additional appropriation of $68,200 for the United States Forest Products Laboratory, Madison,

(Continued on page 21)

New Abitibi Reorganization Plan Approved

Joint Meeting of All Protective Committees Except Bondholders Group of Abitibi Power & Paper Co. Approves New Reorganization Plan — Toronto Business Improved — Carton Council Holds Annual Meeting.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 11, 1940—At a joint meeting of members of all the Abitibi Power and Paper Company Protective Committees except the Bondholders' Protective Committee, it was decided to send a deputation to the Ontario Government to urge that the latter take acive measures to bring the company out of its eight-year receivership to serve the public interest, aid employment and make the industry solvent. The members approved a plan for the reorganization of the company which provides for allotting to bondholders 50 per cent of their holdings in new first mortgage bonds, 50 per cent in new debentures, with provision for payment of accrued interest through issuance of non-cumulative preferred stock, thereby adequately protecting bondholders in their priorities.

New Stock to Compensate Bondholders

In addition, the plan provides for allotting a percentage of new common stock to bondholders "to compensate for any possible future loss, owing to the only partially cumulative feature of the debentures and the non-cumulative feature of the preferred stock." The remaining stock, according to the plan, is to be divided among preferred shareholders and common shareholders. Complete details of the plan were not released at the meeting, but it is understood that informal approval of the principles had been obtained from large holders of bonds, including certain of the institutions that have taken an active part in the company's affairs since receivership.

H. F. E. Kent Heads Gage & Co.

H. F. Kent, who for two years was president of the Canadian Wholesale Paper Dealers Association, retiring recently, has been elected president of W. J. Gage & Company, wholesale paper dealers, Toronto, of which he has been managing director for a number of years. He succeeds H. H. Love as president, the latter being made Chairman of the Board. Many friends are extending sympathy for Mr. Kent who, during the past week, suffered the loss of his wife, who passed away after a long illness.

Company Now in Favorable Position

Those present were unanimous in the view that the company is now in an infinitely better position to reorganize than was the case in July, 1937, when the first Ripley plan was brought forward. At that time earnings were not nearly as substantial as at present. During 1936 the highest earnings in any individual month were $270,980 in November, and the year's total was only $2,146,905. Earnings for 1939 totalled in excess of $3,600,000 with January, 1940, producing earnings of $447,776, compared with only $33,942 in January, 1936, and with $336,972 in January, 1937. Average monthly earnings amounted to $180,000 for the calendar year 1936.

Emphasis was also placed upon the fact that working capital position at present is very much stronger than that which existed prior to the introduction of the first plan of Bondholders' Protective Committee. Net working capital as at Dec. 31, 1936, amounted to $2,241,000, compared with working capital estimated at between $10,500,000 and $11,000,000 at the present time. It was stated that, in view of the greatly improved position, both in assets and earnings, there is but little ground for the present contention of certain bondholders that no equity remains for the shareholders.

Box Association to Meet in June

The annual convention of the Canadian Paper Box Manufacturers Association will be held at the Seigniory Club, Quebec Province, on June 2 to 22. This is a gathering which the ladies will attend.

Carton Council Holds Annual Meeting

The annual meeting of the Toronto Carton Council was held recently and was most successful. Robert Dunlop is the new chairman for the coming year. At the supper which was presided over by William Filey, among the guests was Harry Roden, a director of the National Paper Box Makers Association who invited those present to attend the annual convention which will be held in Saint Louis, Mo. on May 19-22. Last year the Canadian producers were the guests of the National Association in New York City.

Business Improved in Toronto

The first three months of the paper business is proving better than many wholesalers and manufacturers have been expecting and mills are still busy in the book and writing line while those plants, which turn out specialties, some of which can not be obtained owing to the war, are rushed to the limit. Glassine and greaseproof papers which were formerly obtained overseas are not reaching Canada now and the demand for these and like brands is very brisk.

The new prices which went into effect on fine papers at the first of the year, have not slowed down business and it is not expected there will be any advances in April as was predicted a few weeks ago. Pulp prices are advancing rapidly but unless figures go exceptionally high it is not thought the mills will make any ascension in present quotations on their regular output. March is starting off exceptionally well in the amount of orders which the mills and jobbers are receiving and while there was a lull of a couple of weeks in the early part of February, conditions have changed and several wholesalers expect that the showing for the first three months of 1940 will in spite of the war show a gain of ten to fifteen per cent above the first quarter of 1939.

Stronger Buying Tone Reported in Midwest

Encouraging Signs of Improved Business Reflected In Stronger Paper Market With Bonds, Ledgers and Kraft Papers In More Active Demand — Salesmen Install Officers — Illinois Sales Tax Ruling Expected Soon.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 11, 1940—The Chicago paper market this week began to show encouraging signs of emerging from several weeks of rather quiet business. Markets in virtually all cases were steady and the improving Easter retail business, continued scarcity of raw materials and advanced costs of operation, were combining to force additional strength as well as improved buying tone. Groundwoods showed an improved position over a week ago as orders increased both in quantity and size. Better feeling in newsprint circles was likewise noted while bonds and ledgers found the underlying tone much better according to reports. Sulphites showed little change with the exception of a more pronounced demand for immediate orders. Book and cover papers were also said to be slightly better and most executives locally feel that higher prices are bound to be in evidence in the comparatively near future. Kraft papers were reported in better demand than last week. Waste papers, with prices subject to revision this week end, showed a marked disposition toward weakness following several weeks of fairly steady strength.

Midwest Salesmen Install Officers

The midwest division of the Salesmen's Association of the Paper Industry has now installed Courtney Reeves as vice-president of the division and received the assurance of Burt Fisher that he is ready to fulfill his duties as assistant vice-president. At the same meeting at which the installation took place, John Diggs accepted the congratulations of the group for his selection as president of the national organization. The new vice-president lost little time in announcing his selections as chairmen of the various standing committees. They are as follows: John T. Burrus, Albemarle Paper Company, chairman of the Educational Committee with its already well known program of simplifying various phases of the paper business; Ben K. Babbitt, Brown Company, chairman of the Social Committee which functions so well around the holiday season and on other occasions; F. D. Patterson, Flambeau Paper Company, chairman of the time exacting golf committee; F. X. Meiners, Filer Fibre Company, chairman of the membership committee and R. O. Warner, Minneapolis & Ontario Paper Company, chairman of the increasingly popular bowling league. With the appointment of an assistant golf chairman, a most handy office created a year or so ago, the local SAPEYES will be ready to put full speed ahead to its best year.

Sales Tax Ruling Expected Soon

By April it is expected that Illinois business may have a new sales tax ruling based on the recent United States Supreme Court decision affecting the New York city sales tax. It is expected that the new ruling will have little to do with exports but will have a direct bearing on all merchandise coming into Illinois. It is stated that the ruling may develop a situation wherein all merchandise imported into Illinois, regardless of source, may be taxed under the retail occupation tax if such a sale meets the other ordinary requirements of the Retailers Occupation Tax act. It would mean, in effect, elimination of interstate commerce restrictions in the taxing of all persons selling merchandise to the ultimate consumer.

Bradner Smith Adds New Line

Two Illinois paper distributors, Bradner Smith & Company of Chicago and the Capital City Paper Company of Springfield, have recently added to their representative lines a new product manufactured by Consolidated Water Power and Paper Company, known as Modern Gloss Coated.

Traffic Club Elects

The Junior Traffic Club of Chicago recently elected officers for the coming year with L. B. Freeman, Grand Trunk Railway Company, now serving as president to succeed John Middleton of the Pioneer Paper Stock Company who becomes chairman of the board of directors.

Canadian Waterways To Open Early

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 11, 1940—An earlier opening of navigation on the St. Lawrence waterway than usual is expected. The ice breakers are now well on their way to Montreal from Quebec, having already cleared a channel through Lake St. Peter, past the conjunction of the Richelieu river with the St. Lawrence. Arrangements are under way for opening the canals, and shortly navigation should be in full swing. This will be helpful to pulp and paper companies, who will be able to make deliveries by water at Great Lake ports and also via the Richelieu Canal and Lake Champlain to ports on the Hudson River.

Value of Research To Be Discussed

An announcement has been made that the subject for general discussion at the Annual Meeting of the Waste Paper Institute to be held on Tuesday afternoon, March 19, in connection with the Convention of the National Association of Waste Material Dealers, Inc. is to be "Can Research Aid in the Waste Paper Industry?"

Among those who will discuss the subject will be Dr. Eduard Farber, research director of the Polyxor Chemical Company Inc., New Haven, Conn. Dr. Farber is an authority on wood cellulose and has carried on extensive research work in connection with efforts being made to find new uses for waste paper.

Philadelphia Trade Expects Spring Rise

While the Current Paper Market Shows Only Variable Gains Many In Trade Expect An Upswing In Spring Months — Paper & Cordage Association To Discuss Plan To Affiliate With National Paper & Twine Club.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 11, 1940—With Spring officially a week or so away, only variable improvement is reported in both fine and coarse branches of the paper trade this week, a condition which has maintained since the turn of the year. The tide, however, is set for basic improvement, subject, of course, to surface conditions, and more and more those in the industry here are coming to this point of view, forecasting the prediction that a distinct upswing will be experienced in May.

Numerous inquiries are coming into the mills for various papers manufactured within the Metropolitan area indicating that buyers are shopping around before placing orders and it is from these sources that manufacturers hope to receive results. Converters report a fairly good demand for such commodities as bags, boxes and containers, the latter being particularly in demand among clothing manufacturers and milliners.

Paper Stock Market Dull

Virtual stagnation exists in the paper stock market for all the cheaper grades but there is real satisfaction among the packers that there has been no recession of quotations on the better grades such as soft whites and allied lines. The fact that in those grades prices have held so steadily, a market generally soft gives confidence for the future. There is no disposition on the part of packers to hold back stock in expectation of better prices, and so with a market pretty well cleaned up either a decrease in supply or an increase in demand must result in firmer prices, or perhaps an increase

Trade Associations Consider Affiliation

In response to invitations received during the week by George K. Hooper, president of The Philadelphia Paper and Cordage Association, from J. L. Richey, executive secretary-treasurer and counsel of the Paper and Twine Club, Cincinnati, Ohio, and E. J. Durkin of Hinde & Dauche Paper Company, chairman of the attendance committee for the summer meeting, to have the Philadelphia Association affiliate with the National Paper and Twine Club, president Hooper announces the appointment of a committee headed by E. L. Richards of Buffalo Envelope Company, to meet with Messrs. Richey and Durkin to discuss the mechanics of the affiliation of the Philadelphia Association.

The regular monthly luncheon meeting of the Philadelphia Paper and Cordage Association, will take place at the Arcadia Restaurant on March 15, at which time the subject of affiliating with the Paper and Twine Club will be discussed.

The membership of the Philadelphia Paper and Cordage Association, which now includes practically every paper house, twine house, converter and mill representative operating in the Philadelphia area, is growing by leaps and bounds, and the goal set by president Hooper is 150 members.

Schuylkill Paper Co. Moves

Frederick J. Balch, president of Schuylkill Paper Company, Third and Vine Streets, announces the removal of their offices and warehouse on Saturday last, to 710 South Washington Square where they have acquired a 6-story building and an entire floor in the adjoining building of the Farm Journal. The Schuylkill Paper Company has been appointed Philadelphia distributors for the S. B. Warren complete line of book papers. During the month a visitation was made to the Warren mills at Westport, Maine, by the salesmen and all those employed on the order desk of Schuylkill Paper Company with a view to familiarize them with the methods of selling the Warren line. Mr. Balch, accompanied by Mrs. Balch, has just returned from a ten day trip to Florida.

Newsprint Production Increases

Production of newsprint in Canada during February 1940 amounted to 231,823 tons and shipments to 211,322 tons. Production in the United States was 81,455 tons and shipments 79,972 tons, making a total United States and Canadian newsprint production of 313,278 tons and shipments of 291,294 tons. During February, 28,944 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 342,222 tons. Total production in February 1939 was 293,628 tons.

The Canadian mills produced 73,842 tons more in the first two months of 1940 than in the first two months of 1939, which was an increase of eighteen and one tenth per cent. The output in the United States was 17,449 tons or eleven and eight tenths per cent more than in the first two months of 1939, in Newfoundland production was 16,317 tons or thirty-six and five tenths per cent more, making a total increase of 107,608 tons, or seventeen and nine tenths per cent more than in the first two months of 1939.

Stocks of newsprint paper at the end of February were 196,762 tons at Canadian mills and 17,602 tons at United States mills, making a combined total of 214,364 tons compared with 192,380 tons on January 31, 1940. During the winter some tonnage is accumulating at points from which water shipments will later be made.

St. Helens Reelects Officers

All officers of the St. Helens Pulp and Paper Company were re-elected at the annual meeting of stockholders held at Portland, Ore., recently. Max Oberdorfer was re-elected president and general manager. The other officers are: Dr. Robert H. Ellis, vice president; E. S. Collins, chairman of the board, and Irving T. Rau, secretary and treasurer. The stockholders re-elected all the directors, who in turn re-elected the officers for the coming year.

N. P. T. A. Approves Certification

The National Paper Trade Association at its recent Convention approved a certification program which will be of tremendous value to the whole industry, according to R. H. Ziegler, assistant secretary. The purpose of this program is to set up standards, specifications, and practical sales promotion for mill branded items that will be sold exclusively to N.P.T.A. members. A certification seal will be placed upon items meeting the standards and specifications approved by the Association.

The N.P.T.A. Seal of Certification will be permitted on mill brands of merchandise that meet specifications, if these brands are sold exclusively to N.P.T.A. members and are not resold to other wholesalers.

It is proposed that the contracting mills confine application of the certification seal to a limited number of labels on their resale items; such as, 1000-sheet toilet paper, wax lunch rolls, package napkins, facial tissue, and roll towels. This channel of distribution is the one wherein most national consumer advertising is carried on, and general promotion by members is certain to bring better results than if each member house handling a different brand depends upon his own individual advertising. In order to build a firm repeat business on resale items it is not feasible that items bearing the Certification Seal should be distributed through sub-jobbers. This makes possible a policy of selective distribution in each market.

On competitive, staple items such as kraft grocers bags, kraft wrapping paper, and butchers wrapping paper, the certification seal will be permitted only on products meeting the specifications established by the certification board. It is expected that the program will also apply to vegetable parchment and greaseproof papers, hoping thereby to increase the distribution of these products through merchant channels.

The certification seal will be permitted on merchants' private brands provided such brands meet the specifications and provided the product is not resold to other wholesalers. The N.P.T.A. will recommend that manufacturers using the certification seal issue individual suggested resale schedules to protect merchants differentials on their own products at their own discretion as to resale prices. It is recognized that because of the diversified competition, and even more because of the basic economic distributing trends that exist today, it will be necessary for the merchants to streamline their business in such a way as to enable them to handle competitive products at competitive industry prices.

SEAL OF CERTIFICATION

During the past few years many states have adopted Fair Trade Laws and the N.P.T.A. also recognizes that items carrying the certification seal could be sold under these Fair Trade Laws.

A very important part of this program is the advertising which will lead to acceptance of this certification seal by the buyers of paper. The association feels that this advertising in order to be successful should be approached from a regional standpoint through the N.P.T.A. local constituents. The primary advertising would be in the use of direct mail, stuffers, circulars, etc., featuring the use of this certification seal. The national office will also furnish at cost stickers, or labels for use on letterheads, invoices, etc., and also appropriate window and outdoor advertising material. Other types of advertising will be carried on by the national office with the object of selling the seal itself to the public. The national office will also furnish to the local advertising committees the necessary layouts and samples for exhibits and displays to be set up before civic groups.

The third part of this program deals with a merchants' salesmen's training course. The N.P.T.A. will act as a clearing house for distributing merchandising information, and all data will be collected from mill and merchant executives. This training will be only with regard to the proper merchandising of brands carrying the certification seal, and the course will not deal in the technicalities of manufacturing paper or pulp. This course will be edited periodically and will be combined with a question and answer service pertaining to buyers' objections.

R. H. ZIEGLER
Assistant Secretary

Public Relations in Industry*

By R. A. Hayward[1]

Abstract

Public relations is a matter of prime importance to everybody in industry, and the need to evaluate the progress and results in this work is discussed. The need of obtaining better relations between employer and employee and how this may be accomplished is explained.

Managers of industry are as much concerned with the present and future stability of our social and economic structure as they are with the immediate technical development of the manufacturing processes. This situation presents a fine opportunity for you men who are connected with the technical phases of the industry to help with the solution of some of these social problems.

At the present time we are facing the question of whether or not our present system of free competition and free enterprise will survive. Are there going to be further regulations and restrictions placed upon industry? If so, will they be in the form of duly passed laws, or will they be prescribed by executive boards. Are there going to be limitations on our freedom of speech and freedom of the press? Will democracy, as we have known it, continue to be our form of government in the future? Will the people of this country willingly give up a part or all of their freedom in the *hope* of gaining security?

I wish to emphasize the word *hope,* because all experiences in history show that when the people of a nation seek security by the sacrifice of their freedom, they lose both. This change from a free people to a regimented people can be a gradual evolution. It can come over a country like creeping paralysis. Freedom is sacrificed little by little; and each step, viewed by itself, appears to be an advance and little seems to be sacrificed.

This regimentation can be so gradual that the freedom of the people can be completely turned over to a central government while they are still singing the praises of democracy. Ten years ago it was inconceivable that these questions would ever be raised. Today they are foremost in the minds of all thinking people, and no one knows what the verdict will be.

It seems unbelievable that a system which has produced the greatest amount of wealth, the broadest distribution of wealth, and the highest living standard in the world, should be on the testing block. All of these accomplishments are taken for granted and seem to be little appreciated at the present time. All that is said about these accomplishments seems to make little impression on the minds of the people.

Security of Individual Requires Unselfish Cooperation

Security has always been and always will be first in the mind of every individual. It dominates the thinking and acting of every individual and every political group of people. Wars in the past, including the wars that are now being fought, have been an effort to provide security for one group of people at the expense of someone else.

It is not commonly understood that the more you demand and fight for security, the less everyone will have. Security will only come when all people are willing to live by the golden rule. Unselfish cooperation is the only road to permanent progress. The people of a country cannot have more and more by producing less and less. The policy of restricted production or the theory of "economic scarcity" is only a political means of meeting a temporary situation without any thought being given to a permanent solution.

At the present time, we are facing the question of whether we should enact additional regulations and reforms and further regiment industry, or whether we should try to assimilate the reforms that have already been made and adjust them so that they will fit into our democratic system of government. It is this uncertainty that is preventing a cooperative solution to our present problems.

The final answers to these questions will be decided by the majority of the voting people of the country. Their decision will depend to a large extent on how well they understand the issues that are involved.

To sum up the reforms already enacted makes quite an impressive record. They cannot, however, be counted as progress until we have demonstrated that the country can operate on a balanced budget with these reforms in effect. They cannot be credited as accomplishments until the bills are paid.

In 1937 and 1939, industrial activity was practically equal to 1929 with the exception of construction. All three of these years were peaks in our curve of industrial activity. When you consider that the federal and local governments spent from four to five billion dollars more in these two years than they took in, you surely do have something to worry about.

Effect of Government Deficits

What does an unbalanced budget mean to the average working man? It means very little because he has little understanding of the issues involved. Everyone, however, has a feeling that something is wrong. They all know you cannot go on indefinitely spending more than you are taking in. And there is a desire on the part of the people to know something about the problem.

Everyone knows that the bills that are now being incurred will have to be paid sometime, and the larger the debt becomes, the more difficult it is going to be. We can't go on indefinitely wandering in the fairyland of deficits. The debts will have to be paid or be repudiated. Repudiation would be national bankruptcy. Bankruptcy would mean the confiscation of all the accumulated wealth of the country. You never know that you are bankrupt until you try to pay your bills and cannot do so.

If the debt is not repudiated, then it will have to be met by inflated currency or by a heavy increase in taxes. In either case, this will mean a substantial increase in the cost of commodities without an equivalent increase in wages unless there is a proportional

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Member TAPPI, President, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

increase in productive efficiency. This will be hard to accept unless it is thoroughly understood.

Every employee has a great stake in the future stability of our currency and its purchasing power. He is paying into an old age pension fund and hopes he will receive a specified amount when he retires. The amount of money that he will receive means nothing unless he knows what the price level will be at the time he receives his pension.

Isn't it better to insist now that the budget be balanced in order to stabilize the purchasing power of these pensions? It is well to bear in mind that it will not only be the pensions that will decrease in purchasing power, but all life insurance policies and savings accounts will suffer in the same manner. What seems to be an effort to provide security may turn out to be the means of reducing a great deal of security that people now think they have.

The working people have a more vital interest in seeing that the country operates on a balanced budget than any other group because they do not, as a rule, have sufficient reserves to make up for the decreased purchasing power that may develop. Isn't it important that they should be familiar with these uncertainties?

Should we not insist that the government balance its budget and make some start in the reduction of our national debt? Then, if the tax load is unbearable and inflation begins to effect everyone, the pressure will be so great that the government will have to reduce its expenses.

What the Workers Should Know

Should not the working people know, in connection with this problem, that the money they are paying to the government for social security is being spent by the government in its current operations? Where will the money come from to make these social security payments when they are due? Will it not have to be raised by some other form of taxation in addition to what we already have?

When we talk to the average person about this matter of balancing the budget, he immediately replies that the budget could be balanced now by increasing the taxes on industry, and would be done if the industrial leaders would not kick so much about the high cost of taxes. There is definitely a general belief that industry could stand the additional load and no one would be seriously affected.

Are the leaders of industry not making a serious mistake in allowing this confusion to exist? Should not the people be told the plain truth—that *industry does not pay taxes.* An industrial organization only collects taxes from either the consumer, the laborer, or the stockholder, and turns the money over to the government.

Practically every retail item that a person buys today carries in its cost from 30 to 40 per cent of accumulated taxes. Industries only act as tax collectors and they should receive credit for performing that patriotic service in a very efficient manner. Should not the leaders of industry face this situation openly and honestly, and go before the people telling them exactly what taxes they are collecting from them? Then let the people decide whether they should be increased or decreased. Any increase in taxes that is levied on industry will have to be added to the selling price of the products. The public will have to pay the bill and they should know this.

How do you react to the slogan:—Less Taxes—More Jobs? Some of our most conservative workmen tell me that they see red every time they read this sign. They claim it is Wall Street propaganda. In the first place, they do not feel that they are paying any excessive taxes, and in the second place, they say that when industry does provide the jobs they will support a tax reducing program.

When this is followed by the slogan:—What Helps Business Helps You their answer is—"So what?" I am wondering if some of these well-intended efforts are not adding to the confusion rather than helping with a constructive solution. If increased taxes mean an increase in the cost of living, then the laboring group feel that they can organize together and force an equivalent increase in wages. It is not generally known that from 85 to 90 per cent of the wealth produced in industry is now being paid out in the form of wages. This is clearly set forth in a book published by the United States Department of Commerce under the title of "National Income in the United States."

The wealth produced by any one company is the difference between the net income from sales and the total of material costs and fixed charges. This balance is available for distribution to either the employees or the stockholders of the company. A part of it may be retained as undistributed earnings and reinvested in the equipment. During depression years, many companies dip into their reserves in order to maintain their distribution to labor, so that in these years the distribution runs over 100 per cent of the wealth they create.

In the past few years, the distribution has been on the basis of practically 90 per cent to employees and 10 per cent to stockholders. The average yield on all stocks is less than 3 per cent on the invested capital.

Effect of Increased Labor Costs

Any increase in labor costs again will have to be reflected in increased selling prices, unless there is an improvement in the operating efficiency of the industry to offset the increased costs.

Here again, *industry does not pay wages.* Wages are collected from the consumer and then distributed to the people who produce the product. This relationship should be better understood.

The processes of production and trade are, in reality, nothing more than the trading of the labor of one group for the labor of another. A heavy toll is collected from both for the payment of taxes and interest charges. Money is just the measuring stick for evaluating the transactions.

When the management of industry enters into collective bargaining arrangements, they are not representing the company; they are, in every true sense, representing the public. When they say they cannot agree to an increase in wages, they are, in fact, saying that they do not believe they can sell their product in competition at an increased price.

When an automobile manufacturer bargains collectively with representatives of labor, he is representing the public, because any increase that he agrees to is going to be passed on to the consumer, unless he is able to reduce his costs in some other manner or reduce the quality of the product. The buyer of the car is going to pay the bill whether he be a papermaker or a farmer.

Economic Importance of Just Wage Scale

Wages are the means of distributing the national wealth back to the people who produce it. Each should share in proportion to his contribution. It is of vital importance to our economy that a fair and just

wage scale be developed between all trades and all localities. When wages are below this just scale, every effort should be made to bring them up to their proper level. Likewise, if there is an effort to force them above a just scale, it should be resisted by the public in an uncompromising manner.

If wages are ever set by force or the threat of force, without regard to justice, you have set up the conditions which will destroy democracy. This matter of establishing acceptable national wage scales for the just distribution of wealth is of vital importance.

In Russia, Germany, France, Spain, Italy, and Japan, the governments are prescribing the wage scale, and the question is settled beyond all argument from any individual or group. In Great Britain, the Scandinavian countries, and Australia, national wage scales have been arrived at by negotiations which seem to be acceptable to all parties concerned.

I was very much impressed by my talks with some of the papermakers in England. They compared their rates, not with other paper mills and papermakers but with plumbers, electricians, machinists, and other trades in the country. They seemed to feel that the papermaking wage was fair in comparison with all the other trades. They hoped for a general increase but not for their own particular trade at the expense of others.

The whole matter should be understood by the public and a workable plan developed. There is a popular belief that taxes and wages can be increased, and that prices can be kept down by our anti-trust laws and other governmental controls. We are tending toward inflexible labor costs which, in turn, will result in inflexible prices. Our competitive system in the past has taken into account a competitive situation in labor costs. If this competition is eliminated, will you not, to a large extent, eliminate competition in industry itself? Antitrust laws cannot stop an increase in prices, when the costs of taxes and labor increase.

Effect of Foreign Trade

You hear the suggestion that we can increase the volume of our production and bring back prosperity by increasing our foreign trade. In the long run, foreign trade has to be kept in balance by the exchange of commodities. Temporarily, we can increase foreign trade by loaning money to foreign countries to buy our products and then allowing them to repudiate the debt. It would be much better if we would either *give* them the products or *give* them the money so we would at least retain their goodwill after the transaction is complete.

Or, we can temporarily increase our foreign trade by accepting gold in payment for our commodities and then burying the gold in the hills of Kentucky. Last year we received 3½ billion dollars worth of gold from foreign countries which is now resting safely back in the ground from whence it came. In addition to this, there was a net inflow of one billion dollars worth of foreign capital into this country. Is there any way that this gold and capital can be put back into world circulation except by the purchase of foreign merchandise? Does not this procedure of importing gold create a false prosperity similar to that of operating on an unbalanced budget?

After we have practically all of the gold in the world in storage, what will happen to our foreign trade if the foreign countries go on a direct barter system? When you consider that the costs of labor in the foreign countries range from 10 to 50 per cent of our labor costs, and assuming that they have approximately the same degree of efficiency—then for every hour of labor that we export, we eventually will have to import at least two hours of labor. Can you figure out how the unemployment problem can be permanently solved by putting one man to work on goods for a foreign country, and laying two men off because of the products we eventually will have to import?

It is important that we face all of these questions in a realistic manner. Our industrial structure is, in reality, a group of cooperative enterprises, the nature of which should be better understood by everyone.

Common Interests of Employees and Employers

Stockholders and employees have a very common interest in the success of the company they are associated with. The rights of both should be recognized. The employees and the stockholders have a great responsibility to the customers or public that they serve. The principal responsibility of management is to see that justice prevails between the customers, the employees, and the stockholders.

The cooperative nature of industry is difficult to understand and is not accepted by the public today. There will have to be a carefully planned educational program worked out in order to develop this concept. Such slogans as *"Let's cooperate—It's an old American custom"* are not registering with the public. You might as well say good morning.

Our competitive system has challenged every individual and every group to give his best in the creation and production of wealth. It has offered the opportunity for any individual to advance to a position of great responsibility, if he is willing to make the necessary sacrifices. We have produced more wealth per capita than any other country operating under a different system, and this wealth has been distributed on a broader base. At the present time we are placing too much emphasis on the distribution of wealth and not enough on how to produce it.

Where else in the world can you find a living standard of the people that expects the ownership of an automobile, a telephone, a radio, an electric refrigerator, and all other such conveniences.

By any measurement that you wish to apply, we have in reality reached a higher degree of socialism in this country than has ever existed anywhere. It is true that this competitive system has brought hardships upon many individuals. If you remove these hardships, will you not remove one of the greatest activating forces for progress? It has been said that necessity is the mother of invention. We must be careful that we do not sterilize the brooder of progress.

I have tried to set forth a few of the basic questions facing us today. There are many others that are of equal importance. All of these questions need careful analysis, first in order that they may be better understood, and second, that a constructive solution may be developed for them. Our apparent stability exists because of the tremendous inertia of our economic system and its ability to stand almost unlimited abuse. This country is unique in that we have 130 million people spread out over a vast area, with a variety of climates that allow the production of food throughout the entire year, and transportation systems capable of moving them to every corner of the country. We have practically all of the raw materials required to sustain

a modern civilization. These, in turn, are widely distributed throughout the country.

Althought we are divided into states, we have a common language, common currencies and in general a uniform standard of living.

With out great diversity of interests, any poison that starts in one part tends to become diluted or neutralized before the infection becomes general.

This tremendous mass has started to move toward inflation like a glacier creeping its way to the sea. At times the movement may be imperceptible and may lull us into the thought that there is no movement at all. It will require a tremendous force to stop this movement and prevent ultimate disaster. Civilization needs the leadership of the technically trained men in industry to help work out a solution to these problems.

Delaware Valley TAPPI Discusses Starches

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers Club, Philadelphia, Pa. on Friday evening, March 8, 1940. J. J. Thomas of the Rohm and Haas Company talked on "Starch Conversion by Enzymes and Its Use in Pasting and Surface Sizing".

Those present included: Harry Hulmes, G. L. Schwartz, H. L. Becher, R. H. Dillinger, John D. Gerche, E. J. Stokes, Alex. McInnes, Jr., Thomas P. Field, A. E. Waugh, H. J. Farra, R. M. Bates, George Morin, Joseph J. Fiori, Robert M. McWain, Jacob V. Edge, F. Huston McIllvain, J. F. Halladay, Howard H. Street, J. Carl Schmidt, R. J. Stuart, A. J. Pittioff, R. W. Beales, M. Craig Maxwell, Geo. H. Detweler, Leslie Justice, Walter P. Quimby, Fred B. Attwood, David A. Bume, W. E. Brow, Lewis B. Miller, T. E. Brookover, A. E. Griff, R. Tutt, Jr., R. M. Loddengaard, C. W. Hoffman, Paul Dieffenderfer, R. de S. Couth, George M. Suydam, L. W. Crouse, J. McQuale, Joseph J. Thomas, C. M. Connor, Lois Hans, F. W. Brainerd, J. D. Davis, M. D. Reuben, A. J. Gondyke, Lionel M. Sutherland, A. B. Bechxel, G. B. Martin, Edw. J. Albert, J. C. Dieffenderfer, W. P. Richardson, J. M. Chesnutt, A. W. Cooper, C. E. Kinney, Jesse F. Good, Lew Reed, C. E. Mueller, Frederick J. Myers, Emerson N. Glauner, A. H. Nadelmann, Richard Brugleam and J. J. Lafferty.

Michigan Paper Co. Wins Safety Contest

Please be advised that the Michigan Paper Company of Plainwell, Mich., again came through on the Michigan Mutual Liability Company Paper Mill Safety Contest for 1939 by winning first prize with a frequency rating of 7.36 per cent.

This company won first prize in 1936 with a frequency rating of 15.2 per cent, first prize in 1937 with a frequency rating of 8.9 per cent, and was runner up in 1938 with a frequency rating of 12.5 per cent. The frequency reduction from 1936 to 1940 is approximately 50 per cent.

The safety committee was given a dinner at the Red Brick Tavern, Plainwell, where a bronze plaque was presented by Ed H. Valliere, safety engineer of the Michigan Mutual Liability Company. Talks were given by Dwight Stocker, president and general manager, and Ray Barton, superintendent. George B. Schmid, assistant superintendent, was toastmaster.

NEGOTIATING FOR PATTAN MILL

(Continued from page 13)

Wis., for the next fiscal year has been requested by Senator Robert M. La Follette, who appeared before the Senate appropriations subcommittee in Washington. The senator said the budget recommended $668,200 but the House voted only $600,000. This was $64,000 under the funds provided by Congress in the last farm bill, La Follette said. The laboratory desires to extend its research service on new uses for wood.

New Building for Paper Chemistry

Construction has been started by the Institute of Paper Chemistry, Appleton, Wis., on a frame warehouse 20 by 40 feet in size, the cost to be about $1,300. It will be just east of the present Institute warehouse. Fraser Lumber Company has the contract.

Opposes Exchange of State Lands

The board of supervisors of Oneida County, meeting at Rhinelander, Wis., has adopted a resolution protesting a proposal by the Wisconsin Conservation Commission to exchange state cutover lands for lands owned by the Tomahawk Kraft Paper Company, Tomahawk, Wis. The board contends recreational values would suffer, and asked that the conservation department submit the matter to the board before an exchange is made.

J. McAlear Speaks on Instrumentation

James McAlear of the Mason-Neilan Regulator Company, spoke at a dinner meeting of the Kimberly-Clark Society of Chemical Engineers at Hotel Appleton, Appleton, Wis., March 5. His subject was "Instrumentation for Paper Machine Drying and Indirect Digester Cooking." Thirty attended.

S. F. Shattuck Heads Building Fund

S. F. Shattuck, vice-president of Kimberly-Clark Corporation, Neenah, Wis., has been appointed general chairman of the $400,000 Centennial Building Fund, to be conducted by Carroll College, Waukesha, Wis. Mr. Shattuck has been a trustee of the college since 1904, and has served as president of the board since 1933.

Dr. West Elected Grand Master

Dr. Clarence J. West, editor and research associate at the Institute of Paper Chemistry, Appleton, Wis., has been notified of his election as sovereign grand master of the Grand Council of the Allied Masonic Degrees of the United States of America. The council has jurisdiction over a number of Masonic degrees. Dr. West has been a student of Masonry and a lecturer for a number of years. He is retiring at the same time as grand preceptor of the Grand College of America, Holy Arch Knight Templar Priests.

Consolidated Paper Profits Up

The Consolidated Paper Corporation, Limited, for 1939, reports earnings before bond interest and depreciation, of $3,406,745, according to L. J. Belnap, president, who said this was "substantial improvement" over preceding year.

Obituary

Charles E. Garvin

Charles Edward Garvin, former general manager of the Depere Paper Company, Depere, Wis., which several years ago was a division of the American Writing Paper Corporation, died February 29 at his home in Scotland, Conn. He was 81 years old and for the past 12 years had been retired.

A native of South Hadley Falls, Mr. Garvin was born November 29, 1858, the son of Orrin and Sarah (Batchelder) Garvin. He learned the papermaking business when a young man at the Whiting Paper Company and after several years with this concern founded a paper company in upper New York State. Later he became associated with the American Writing Paper Corporation and was placed in charge of the Depere Division. He remained with the latter firm until his retirement to Scotland, Conn.

Mr. Garvin was a member of the Depere Lodge of Masons No. 85 of Depere, Wis. Surviving him are one brother, George H. Garvin of Scotland and two nephews, Charles S. Garvin of Scotland and Leon E. Garvin of Cornwall, N. Y.

The funeral was held at the Alger funeral home, Saturday afternoon. Services were conducted by Rev. Percy F. Rex and burial was in Forestdale cemetery, Holyoke, Mass.

Fred W. Motschman

MARINETT, Wis., March 11, 1940—Fred W. Motschman, 42, mill manager of the Southern Kraft Corporation here, died the night of March 4 at St. Petersburg, Fla., from heart disease. He was placed in an oxygen tent after suffering a critical attack but failed to rally.

Mr. and Mrs. Motschman and their son Theodore had left for St. Petersburg two weeks previously to enable Mr. Motschman to recuperate from his heart ailment, with which he had been afflicted for some time.

The decedent was born at Boston, Mass., and was graduated from Tuft's College, Boston. His first position was with Brown Company, Berlin, N. H. From there he went to the Pejepscot Paper Company, Brunswick, Maine, and thence to the Champion Paper and Fibre Company, Canton, N. C.

Leaving the Champion company, Mr. Motschman became affiliated with the Continental Paper and Bag Company at Rumford, Me., later accepting a post with the research division of the International Paper Company at Glen's Falls, N. Y. While in this capacity he made a six months' survey of southern mills and then returned to Rumford, Me. with Continental as mill superintendent. He next accepted the position of technical director of the Hudson River mill of International at Corinth, N. Y., and held that post until he came to Marinette in 1937 to become local mill manager for Southern Kraft.

Mr. Motschman was active in civic affairs as a director of the Marinette Chamber of Commerce, and was affiliated with the Rotary Club and the Riverside Country Club. He is survived by his widow and one son.

Funeral services were held at St. Petersburg March 6 and interment was made in that city. A. G. Stone, general manager of Southern Kraft Corporation, went by plane from Chicago to St. Petersburg to represent the company at the services.

Arthur F. Brown

LEWISTON, Me., March 11, 1940—Arthur F. Brown, 69, for 30 years connected with the Waterfalls Paper Mills, Mechanic Falls, Me., died March 11 at the Central Maine General Hospital.

Joseph Parsons Prescott

HOLYOKE, Mass., March 11, 1940—Joseph Parsons Prescott, 42, former paper mill executive and a descendant of one of Holyoke's oldest families, committed suicide by shooting in the cellar of his home, 18 Wellesley road, March 5. A note addressed to his wife said that "it was the best way out."

He was graduated from Phillips Exeter Academy and from Williams College in 1919. He was associated with the Collins Paper Manufacturing Company of North Wilbraham and rose to the position of treasurer of the company in 1935.

Surviving are his widow and two children.

George Wightman

Funeral services were held Friday afternoon at his home for Alfred George Wightman, 75, who died at his home in Huntington, Mass., March 7 after a seven months' illness.

He was born Feb. 12, 1865, in Brooklyn, N. Y., son of George A. and Charlotte Hopkins Wightman. He learned the paper business in Holyoke and became superintendent of the Massasoit Paper Company.

In 1911 he moved to Kalamazoo, Mich., where he was general superintendent of the Hawthorne Paper Company and later to Watertown, N. Y., where he held the same position for Knowlton Brothers. He retired in 1932, making his home here since that time.

He was a life member of the Blue lodge of Masons and Knights Templar in Kalamazoo. He also belonged to the Shriners in Springfield and was a 32nd degree Mason at Grand Rapids.

Surviving are his widow and four children.

Roy V. McCulfor

[FROM OUR REGULAR CORRESPONDENT]

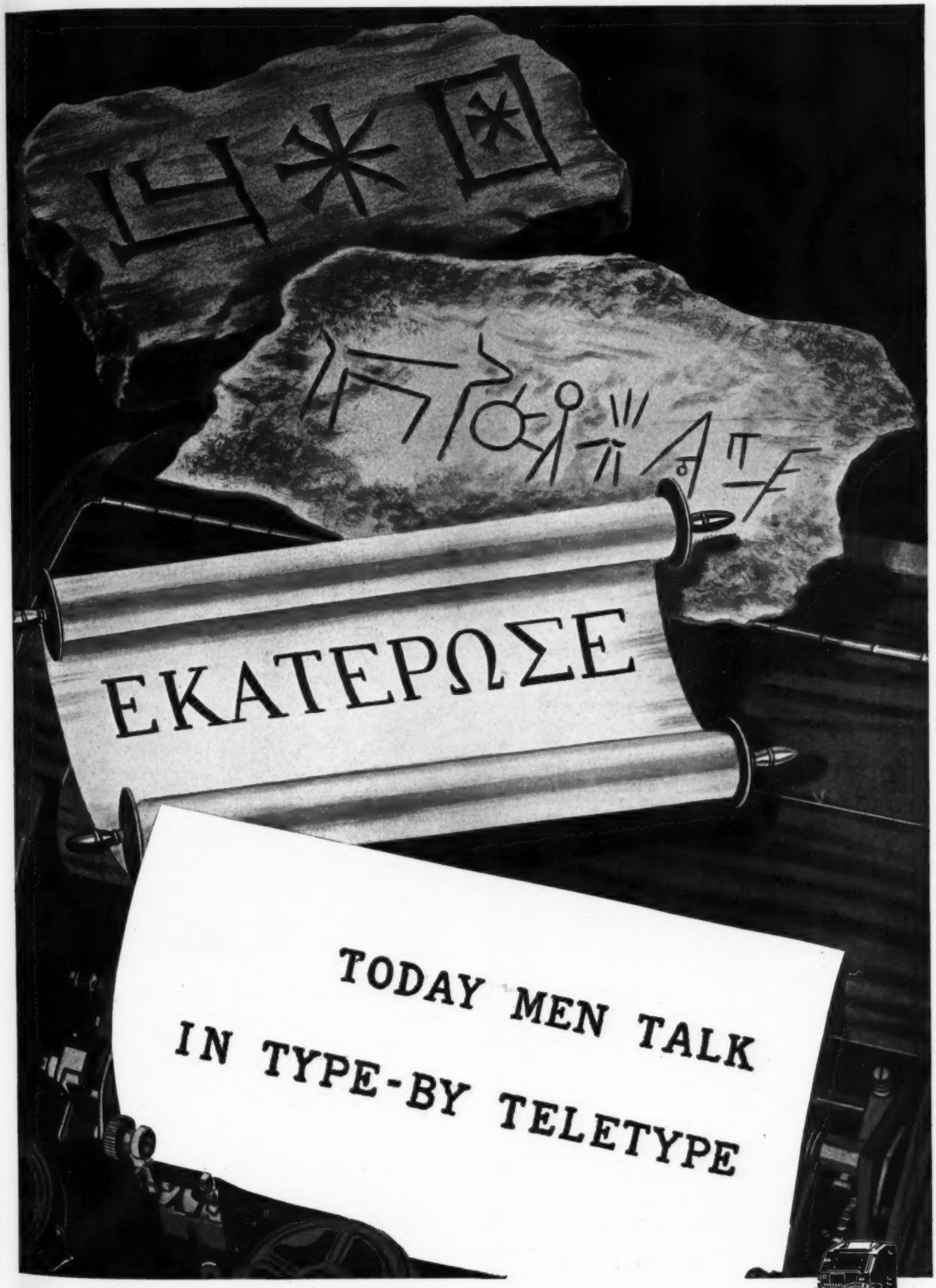
KALAMAZOO, Mich., March 11, 1940—Roy V. McCulfor, treasurer of the Rex Paper Company died on March 8 following an illness of six months. He had been identified with the paper industry since his youth, and had been affiliated with the Rex Paper Company for twenty years. Mr. McCulfor had always maintained a keen interest in civic affairs.

Surviving are the widow, a son Robert McCulfor, his mother Mrs. Helen McCulfor and a sister Mrs. Blanch Hamelink all of Kalamazoo. Burial was in this city.

Monadnock Mills Move Office

BOSTON, Mass., March 11, 1940—The office of the Monadnock Paper Mills is to be removed to 1103 Park Square Building on March 16. The present address is 201 Devonshire street.

D. H. Maynard, formerly with Maynard & Child, Inc., exporters and importers, has become affiliated with the Monadnock Paper Mills in connection with the sales department.



BELL SYSTEM TELETYPEWRITER SERVICE

March 14, 1940

A New Tool for the Industry

Paper makers are interested in the fiber composition of a sheet of paper since such knowledge will verify the fact that the paper has been made according to specifications or will reveal the formula which was used in the manufacture of an unknown sheet and thus enable them, to a certain extent at least, to duplicate the sheet. However, the fiber analyst may play a significant role in quality control and in research and development. With proper training and experience, he can aid in manufacturing problems, as well as in checking manufactured products. Examples of such contributions are found in the Cooking or Bleachability Stain and in the Pulp Purity Stain.

Fiber composition is determined by means of color reactions with a series of dyes or stains, observed under a microscope. The ideal method would consist of a measurement of the color by an apparatus which would give a numerical value for each fiber present. This has not been possible because there is almost always a mixture of fibers in every sheet examined. The evaluation of the colors thus becomes a matter of personal equation, and the value of an analysis depends upon the familiarity of the observer with the colors obtained with the large range of paper making fibers now used by the industry.

Realizing the need for a series of color charts which would give the fiber analyst an accurate comparative standard, The Institute of Paper Chemistry, the American Paper and Pulp Association and the Technical Association of the Pulp and Paper Industry have jointly financed the preparation and publication of such a series of charts. Fortunately there was at the Institute a man who was eminently qualified to prepare these charts. John H. Graf has spent some twenty-odd years in the industry and some six years at the Institute in the development of stains and in the study of the colors developed by them with all the known paper making fibers. This study has been both a hobby and a livelihood during these years. Almost an infinite number of samples have been examined, representing pulps and papers manufactured in this country and abroad. The composite judgment resulting from this study was then translated into a series of water-color paintings. Thus there were available color charts prepared by one observer and therefore of consistent and comparable value.

While these paintings in themselves were of value, it was obviously impossible to prepare a sufficient number of copies to supply the industry. It therefore became necessary to transform the paintings to a printed page and thus make them available to all interested in this field. Because of the very slight differences in shade which had to be reproduced, ordinary processes for reproduction were out of the question. Again, fortunately, it was possible to obtain the services of the Color Laboratories, Inc., of New York City, whose president, I. L. Gartland, had developed a process of color photography which enabled him to prepare photographic plates which were a faithful reproduction of the originals. These plates were then turned over to the Sterling Engraving Company where, under the direction of Harry Groesbeck, engraved plates were prepared; these plates were carefully checked at the Institute with the original paintings, and after some six months of painstaking work, the charts were finally approved. Then came the acid test—could such plates be printed. They were, by the Albert H. Vela Company, under the immediate direction of Albert Vela with the close cooperation of the Physics Department of the Institute.

Thus was produced the Color Atlas, containing five color charts, which show the reactions obtained with the Herzberg Stain, the A (Modified Sutermeister) Stain, the C Stain, the Bright Stain, the Cooking or Bleachability Stain, the Bleach Stain, and the Lofton and Merritt or the Pulp Purity Stain with a wide variety of paper making fibers. The Atlas also contains twenty-one pages of text, in which are given directions for the preparation and application of these stains.

The Color Atlas has a page size of eleven by fifteen inches to permit a more satisfactory reproduction of the charts. It is beautifully bound in very heavy boards having a facing and liner of grained paper and is enclosed in a carton of the same material and with the same finish. Realizing that such a book might be damaged, if subjected to laboratory conditions, an extra set of charts is included with each volume.

The Color Atlas is now available from the Institute of Paper Chemistry at a net price of $12.50 per volume. Because of the very heavy production costs involved, discounts from this price cannot be allowed.

Business as Usual

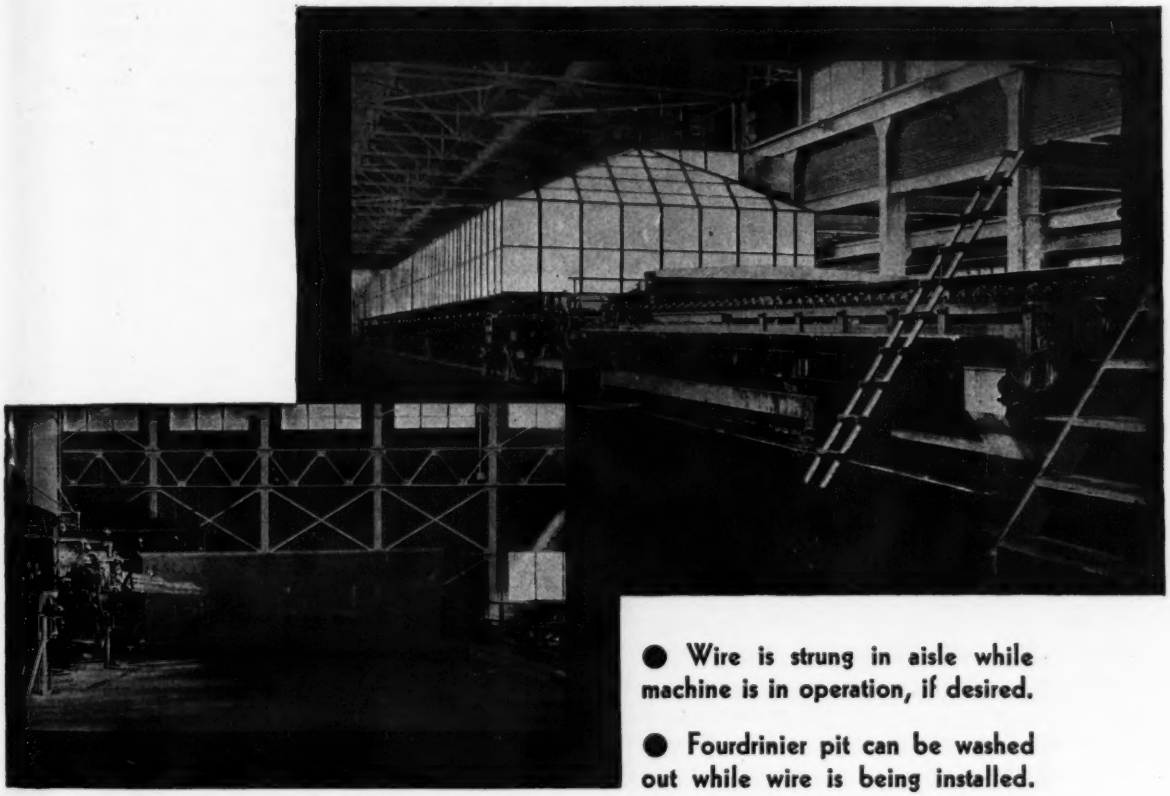
Rehearsing the difficulties that are being encountered by the industry at present, the *Finnish Paper and Timber Journal* says, "Yet, the statistics prove that, wherever it is at all possible, the production is maintained and reaches results well above what, reasonably, can be expected. The men at the machines remain at their posts, just as determinedly as the men at the front, and when an interruption in the production proves unavoidable, the work is resumed immediately thereafter. It is evident that, in view of the difficulties of handling sawngoods, it can not be avoided that the sawmilling industry shows comparatively less satisfactory results, but, otherwise, no complaints should and could be made with regard to the ability of the Finnish industry to maintain its production. The shipping difficulties are also to be surmounted; if obstacles arise on account of ice or for other reasons, new ways and means must be found. Our friends in the big importing countries, may, therefore, feel assured that Finland hereinafter, as hitherto, will do her utmost to provide those goods which they are used to order from us."

Hold Mill Night at Watervliet

[FROM OUR REGULAR CORRESPONDENT]

SOUTH BEND, Ind., March 11, 1940—The Chamber of Commerce at Watervliet, Mich., north of here, held its February meeting late last week and celebrated "Mill Night," the purpose being to get together with officials of the Watervliet Paper Company. E. H. Gilman, retired, for many years superintendent of the book division of the company, was an honored guest. Louis J. Scheid, superintendent now of the book division, gave an address on the history of paper making. E. G. Milham, superintendent of the coating department, talked on the uses of coated paper, and George K. Ferguson, president and general manager, also talked.

THE BELOIT *Removable Fourdrinier*



● Wire is strung in aisle while machine is in operation, if desired.

● Fourdrinier pit can be washed out while wire is being installed.

● Wire bundle is taken from shipping box and mounted directly in carriage—no chucks to apply—no further handling as bundle is unreeled as carriage moves along to form wire loop.

● All wire poles are mounted in carriage before loop is formed. Inside poles are inserted inside the wire.

● Safest — most convenient — quickest method of installing Fourdrinier wire.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS. U.S.A. **IS THE MODERN WAY**

Handling Liquid Chlorine

The accompanying illustration represents a liquid chlorine placard which covers the usage and handling of liquid chlorine and includes safety recommendations which are simple to follow. The placard

is 19½ inches by 14 inches. It is handsomely printed, illustrated in color and is strongly backed with canvas for permanent usefulness. Users of chlorine may obtain this placard free by writing to the Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia, Pa.

Dictionary of Paper

The Dictionary of Paper has just been published under the auspices and direction of the American Paper and Pulp Association. The book contains 365 pages and the contents include philosophy of definitions, the classification and definitions of pulps, classification of waste materials used in the paper and board industries and definitions of papers and paper boards.

The volume is a substantial contribution to the general literature of the pulp and paper industry and should prove very useful, not only in the paper trade but for general reference. A comprehensive presentment of the nomenclature in the expanding pulp and paper industries has long been needed and this volume meets the requirements for an up-to-date manual on the subject. The book is attractively and durably bound in blue cloth and may be obtained from the American Pulp and Paper Association, 122 East 42nd street, New York, at $5 a copy.

Goes with Parker Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., March 11, 1940—Harry E. Anthony, recently of the New York office of the Chemical Paper Manufacturing Company, has resigned to take a position with the Parker Paper Company of High Point and Gastonia, N. C. For a time he lived in this city while with the Chemical and was formerly with the sales force of the Berkshire Hills Paper Company of Adams, Mass.

To Hold Interesting Rag Session

One of the most interesting sessions scheduled during the coming convention of the National Association of Waste Material Dealers, Inc., to be held at the Hotel Astor, New York, March 18 to 20 inclusive, is that of the Associated Rag Industries representing all of the rag interests within the association.

All of the addresses and discussions will center around the subject "The Future Of Rags As A Raw Material." It is expected that prominent consuming interests representing writing paper manufacturers, board manufacturers, roofing paper manufacturers, wiping cloth interests and several others will be represented at this particular session.

Many dealers handling rags either cotton or woolen have been greatly disturbed by the inroads which certain substitutes have made in a field which formerly was exclusively open to various types of rags. All of these conditions will be explored and an exceptionally interesting meeting is anticipated.

It is also expected that a report will be made covering the latest developments in the experiments that have been going on or are to be undertaken with a view of utilizing cotton in place of rags in the manufacture of fine writing paper. Any concern whose future livelihood is wrapped up in rags as a raw material should, purely from an educational standpoint if for no other reason, make it a point to be represented at the coming meeting of the Associated Rag Industries, a Division of the National Association of Waste Material Dealers, Inc.

The meeting has been scheduled particularly for Wednesday March 20, the closing day of the convention in order to permit as many paper manufacturers who will be in New York on that day to attend the associations annual banquet, to be present at the associated rag meeting.

D. J. Murray Mfg. Co. Gets Patent

D. J. Murray Manufacturing Company, Wausau, Wis., has been granted a patent by the U. S. Patent Office on a new design windershaft, and is now manufacturing it. This windershaft has a number of features of interest to paper mills. The shaft expands automatically, and is foolproof—simple in design and easy to operate. It has a wide flat contact at pressure points that means the mechanism never wears out of shape, as there is no strain on pins. In collapsing there is no rubbing action on moving parts, either, to cause wear. The same pressure is used to collapse the shaft as to withdraw it from the paper roll. There is no danger of the shaft collapsing on the machine.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 13, 1940—The Government Printing Office has received the following bids for 80,000 pounds of supercalendered book paper in 38 inch rolls; Whitaker Paper Company, 5.58 cents; Mudge Paper Company, 5.33 cents; Perkins-Goodwin Company, 5.33 cents; R. P. Andrews Paper Company, 4.49 cents; Stanford Paper Company, 5.22 cents; Barton, Duer & Koch Paper Company, 5.28 cents; Frank Parsons Paper Company, 4.73 cents; Marquette Paper Company, 5.23 cents; and Paper Corp. of U. S., 5.057 cents.

Sorg Paper Co. Issues Statement

MIDDLETOWN, Ohio, March 11, 1940—The Sorg Paper Company, which the National Labor Relations Board determined to be guilty of violating the Wagner Act has issued the following statement through Donald G. Driscoll, vice-president of the company:—

"The Sorg Paper Company refused to recognize and bargain with the C. I. O. because we were then and are still convinced that the C. I. O. does not represent a majority of our employees.

"Furthermore, we believe that there was collusion in the election in 1938. This was clearly brought out in Washington on January 11, 1940, when the congressional committee investigating NLRB charged the board's Cincinnati regional director with 'juggling figures' in the Sorg election.

"Representatives of the management of the paper mill bargained with the association only after an independent certified public accountant certified that the organization represented a majority of the employees in the plant and proof that the organization represented the free and uncoerced choice of the employees. They have bargained concerning many matters which have been peacefully and agreeably concluded.

"It is not now and has not been the policy of the Sorg Paper Company to dominate or interfere with the formation of the Sorg Paper Company Employees' Association, or otherwise interfere with its employees in the exercise of their rights to self-organization as defined in the NLRA.

"Therefore, the company intends to take every possible legal step necessary to obtain a review and reversal of the recommendations of the trial examiner.

"This intermediate report is not legally binding. Our company intends to continue its present policy of dealing with employees, believing that this policy will be approved by a court of justice."

The election was held in August, 1938, when the C. I. O. claimed a majority of one vote.

Shore Road Paper Corp. Buys Plant

The Shore Road Paper Corporation, of which George E. Alexander is general manager and president, has purchased the "lower" paper mill in Mt. Holly Springs, Pa. and is putting the plant in condition to start operations at an early date. The plant will be operated seven days per week turning out about twenty-five tons of Kraft paper daily. Peter-M. Nesbitt, who has been connected with various large plants in Wisconsin, and the southern states will be superintendent.

G. H. Spencer Goes with Pusey & Jones

George H. Spencer, who is widely and favorably known in the pulp and paper industry, joined the sales department of The Pusey & Jones Corporation, Wilmington, Del., on March 18. Mr. Spencer is a member of the Technical Association of the Pulp and Paper Industry and has been connected with the paper industry for over twenty years as sales engineer with SKF Industries, Inc., Minton Vacuum Dryer Corporation, E. D. Jones & Sons Company and, recently, Bantam Roller Bearing Division of the Torrington Company.

Hoberg Employees Insured

The Hoberg Paper Mills, Inc., paper manufacturer, of Green Bay, Wis., has adopted a comprehensive group program which provides employees with a total of more than $850,000 of life insurance, approximately the same amount of accidental death and dismemberment coverage, and sickness and accident benefits supplemented by hospitalization and surgical operation benefits. Announcement of the group plan was made by J. M. Conway, president of the paper mills.

The plan is being underwritten by the Metropolitan Life Insurance Company on a cooperative basis whereby the employees contribute fixed amounts and the employer bears the balance of the entire net cost.

Under the plan, employees receive life insurance ranging in amount from $500 to $5,000; a similar range of accidental death and dismemberment protection, and sickness and accident benefits ranging from $10 a week to $40 a week. In case of hospital confinement, employees will receive payments of $3, $4, or $5 a day, for a period not to exceed a maximum of 31 days. Surgical operation benefits range up to $150.

The group program includes visiting nurse care and the distribution of pamphlets on health conservation and disease prevention.

I. P. Pays Dividend on Preferred

The board of directors of the International Paper and Power Company on Tuesday declared a regular dividend of $1.25 a share for the first quarter of 1940, on the company's outstanding cumulative convertible 5 per cent preferred stock, payable March 30, 1940, to holders of record at close of business March 22, 1940. After payment of this dividend there will remain $12.50 of unpaid dividend accumulation on the stock. The last previous dividend was on December 10, 1937, when $2.50 a share was paid.

The board of directors of the International Paper Company which also met Tuesday did not take any action with respect to dividends. However, the International Paper and Power Company has agreed to pay to any of the few remaining holders of the International Paper Company 7 per cent preferred stock, who so wish, the sum of $1.25 a share against an assignment of that amount of dividends accrued on such stock.

Binder's Board Simplified Practice

The Division of Simplified Practice of the National Bureau of Standards has announced that Simplified Practice Recommendation R81-28, covering binders' board used by the bookbinding industry, has again been reaffirmed without change by the Standing Committee of the industry.

This recommendation became effective in 1928, and was previously reaffirmed in 1929, 1930, 1932, and 1934. It lists 10 sizes of binder's board for stock purposes, ranging from 20 by 30 inches to 31 by 41 inches.

Copies of R81-28 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for the Week Ending March 13, 1940

	High	Low	Last
Armstrong Cork Co.	40	39	39¼
Celotex Corp.	11⅝	10⅝	10⅝
Celotex Corp., pf.	66	65¼	65¼
Certain-Teed Products Corp.	6⅞	6½	6⅝
Certain-Teed Products Corp., pf.	33⅝	32	32
Champion Paper & Fibre Co.	22¾	22¼	22¾
Champion Paper & Fibre Co., pf.	105	104	105
Congoleum-Nairn Co.	23¾	23¼	23⅝
Container Corp. of America	16¼	15½	15⅝
Continental-Diamond Fibre Co.	7¼	7¼	7¼
Crown-Zellerbach Co.	17	15¾	15¾
Crown-Zellerbach Co., pf.	91½	90½	90½
Flintkote Co.	19¾	19¼	19⅜
Robert Gair	3⅜	3⅛	3⅛
Robert Gair, pf.	15¼	15	15
International Paper & Power	13⅛	12	12⅛
International Paper & Power, pf.	58¼	55½	55¾
Johns-Manville Corp.	72¾	71¾	71¾
Johns-Manville Corp., pf.	130	129	129¾
Kimberly Clark Corp.	38	37½	38
MacAndrews & Forbes	34	34	34
MacAndrews & Forbes, pf.	135¼	135¼	135¼
Masonite Corp.	36⅞	34¾	35
Mead Corp.	10¾	10	10
Mead Corp., pf.	79	79	79
Paraffine Companies, Inc.	43¾	43¾	43¾
Paraffine Companies, Inc., pf.	101	101	101
Rayonier, Inc.	17⅝	16¾	16¾
Rayonier, Inc., pf.	28½	28½	28½
Ruberoid Co.	20¼	19¼	20
Scott Paper Co.	47	45⅝	46¼
Scott Paper Co., pf.	108½	108¼	108¼
Sutherland Paper Co.	34	32⅞	34
Union Bag & Paper Corp.	14⅛	13¼	13¼
United Paperboard Co.	5¼	4¾	4¾
U. S. Gypsum Co.	82	80½	81¼
U. S. Gypsum Co., pf.	179	178½	178½

New York Curb Exchange

High, Low and Last for the Week Ending March 13, 1940

	High	Low	Last
Brown Co., pf.	26	25½	25½
Great Northern Paper	43½	43	43½
National Container Corp.	10¾	10¼	10½
St. Regis Paper Co.	2⅞	2⅝	2⅝
St. Regis Paper Co., pf.	67¼	64	64
Taggart Corp.	4⅜	4¼	4¼

Container Corp. Nets $1,448,900

The Container Corporation of America reports for 1939 consolidated net income of $1,448,900 after administrative charges, interest, and provisions for depreciation, bad and doubtful accounts and local and Federal taxes, equivalent to $1.85 a share on 781,253 shares of capital stock outstanding. This compares with a net income of $29,470, or 4 cents a share for 1938.

Consolidated net sales for 1939 were $24,114,815, against $18,705,290 for 1938. The increase over the previous year was 29 per cent in dollar volume and 28 per cent in units.

Walter P. Paepcke, president, states that "many new outlets for our products were added both in customers and new uses. The sales promotion, laboratory and research departments are full of further new developments. Some of these are revolutionary in character and potentially very broad in scope and in possibilities of application."

Dixie-Vortex Profits Rise

The Dixie-Vortex Company and subsidiaries, for 1939, report a net profit of $856,200 after amortization of patents, loss of conversion of Canadian subsidiary's accounts and other charges, equal after Class A dividends to $2.02 each on 202,666 no par common shares, excluding 29,612 shares in treasury. Net profit in 1938 was $734,998, or $1.42 a common share.

Johns-Manville Earnings Up

The consolidated net profit of the Johns-Manville Corporation for 1939 was $4,164,716, equal, after preferred dividends, to $4.28 each on 850,000 common shares, compared with $1,455,302, or $1.09 a share, earned in 1938, Lewis H. Brown, president of the company, reported yesterday. Dividends of $2.75 a share were paid in 1939, compared with 50 cents in 1938.

"In the face of many elements which, if not offset, would have increased production costs, Johns-Manville made no substantial increases in 1939 in the selling prices of its products," Mr. Brown reporter. "Our company has made every effort to offset mounting costs by producing and selling goods with ever-increasing efficiency."

American Writing Profit $238,749

The American Writing Paper Corporation, for the year ended December 31, reports a profit of $238,749 after taxes and charges, equal to 57 cents a share on 416,068 shares of common stock outstanding, compared with a net loss of $46,857 in 1938; cash in banks and on hand equaled $444,887 at end of year, against $466,937 at end of 1938; notes and accounts receivable $674,221, against $561,973; inventories $1,413,658, against $1,170,492, and total current liabilities $655,544, against $385,813.

National Container Earns $357,945

The National Container Corporation, for 1939, reports a net profit of $357,945, equal to $1.08 each on 330,482 common shares, against $125,903, or 38 cents a share, the year before. Net sales of $4,846,163 increased 58 per cent over the 1938 volume. Current assets as of December 31, 1939, amounted to $1,142,320 and current liabilities were $433,728, compared with current assets of $988,261 and current liabilities of $356,736 at end of preceding year.

Made Executives of Fraser Companies

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 11, 1940—Col. K. S. Maclachlan, president of the Fraser Companies, who is serving at Ottawa as Associate Acting Deputy Minister of National Defence, has announced the appointment of Aubrey Crabtree as vice president and general manager of Fraser Companies and subsidiaries and L. M. Sherwood as vice-president and comptroller.

American Box Board Nets $133,411

The American Box Board Company for the year to November 25, reports a net profit of $133,411, equivalent, after dividend requirements on the 7 per cent cumulative preferred stock, to 44 cents each on 121,363 shares of common stock, compared with $50,821, or 44 cents each on 113,965 shares of 7 per cent preferred stock, for the year ended November 25, 1938.

Indianapolis Active

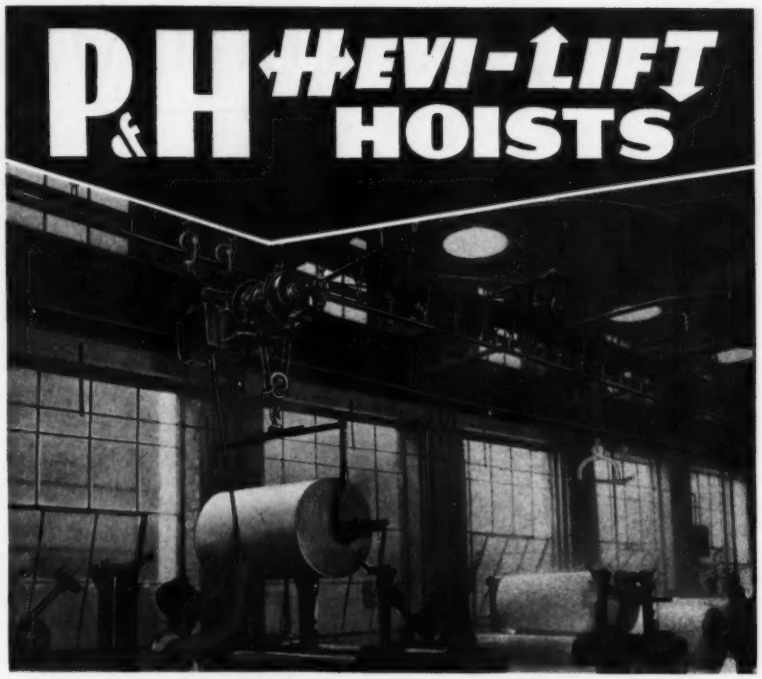
[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 11, 1940—The coming of better weather seems to have stimulated the paper business to some extent here. Volume in some lines is not as large as is desired, but there are definite indications of a change in the tempo and the majority of lines will compare favorably with last year. Prices continue firm in all grades and there is no present indication of change.

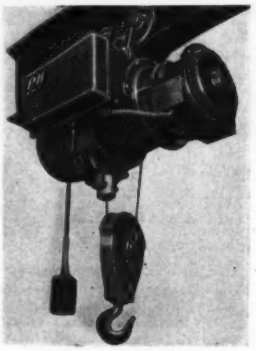
Perhaps the brightest spot in the picture now is in the building and roofing demand. Due to winter weather, which precluded nearly all construction, volume for January and February was extremely light and there were many who predicted a sad year for an industry which was on top last year. However, it seems now that building merely was latent and far from dead. Since the first of the month there has been a steady increase in operations and some of the dealers now are entering the market for paper and roofing in a big way. It is predicted that most of this year's construction will be for residential units.

The fine paper demand shows a steady volume with firm prices. Bonds, ledgers and covers all are moving nicely and according to local jobbers there are no disturbing factors to be seen at present. Inquiries now are being received for summer specialties, though actual demand has not yet started. Carry-over stocks from last year are low and most dealers will be in the market shortly. Tissues are moving well, jobbers report. No change has reported in newsprint, but an increase is expected as winter wanes and spring campaigns make their appearance.

Box factories catering to the beer and liquor trade report some increase, which will become more evident with the coming of warm weather, particularly as regards the brewery demand. Other container men say demand continues fair even though there has been some industrial recession among their customers.



It's costing less to handle paper "THRU THE AIR'



Recently, an increasing number of paper mills, converters, and warehouses have turned to P&H Electric Hoists for economy reasons. Whether it's in production, warehouse, or on the loading platform, the handling of heavy loads becomes a simple push-button job—faster, safer, more accurate. P&H engineers, familiar with your problems, can show you some interesting money-saving ideas. Ask one to call. Or write us for bulletin H-5.

General Offices: 4560 West National Avenue • MILWAUKEE, WISCONSIN

HARNISCHFEGER CORPORATION

HOISTS • WELDING ELECTRODES • MOTORS P&H EXCAVATORS • ELECTRIC CRANES • ARC WELDERS

Look for More Scandinavian Pulp

ALBANY, N. Y., March 4, 1940—Port officials and shipping agents in this section are of the opinion that the valuable pulp trade with Scandinavian countries will continue this year despite unsettled foreign conditions. Supporting this view was the cable announcement this week by Norwegian Foreign Minister Koht, at Copenhagen, that contracts are being made by his government to carry the American trade. During last year the local port received 211,936 tons of wood pulp, chiefly from Norway, Sweden and Finland, valued at over $10,000,000 which was 57,000 tons more than in 1938. The pulp was distributed to mills in the district and to many in the Middle West. Port sheds and warehouses were filled with the product during the greater part of the year. The announcement by Minister Koht stated the Norwegian government is setting up a direct Norway to America route for exports.

CONSTRUCTION NEWS

Camas, Wash.—The Crown Willamette Paper Company, manufacturer of kraft, tissue and other paper stocks, is arranging an immediate call for bids for erection of new addition to mill, to be four-story, about 42 x 175 feet, designed for storage and distributing service. It is reported to cost close to $100,000, including equipment. Company is a division of Crown Zellerbach Corporation, 343 Sansome street, San Francisco, Cal.

Los Angeles, Calif.—Fibreboard Products, Inc., 4444 Pacific boulevard, Vernon, Los Angeles, has filed plans for improvements in plant, for which general contract has been let to Mac Isaac & Menke, 3445 Union Pacific avenue, Vernon. Work will be placed under way at once. No estimate of cost has been announced.

Le Roy, Minn.—The Minnesota Fiber Company is considering early rebuilding of portion of local fiber mill, recently destroyed by fire, with loss reported over $50,000, including equipment. Reconstruction is expected to cost approximately a like amount. R. W. Hathaway is manager.

San Francisco, Calif.—The Schmidt Lithograph Company, Second and Bryant streets, manufacturer of corrugated boxes and containers, has completed plans for new addition to plant, to be one-story, reported to cost close to $45,000, with equipment. New unit will be used for considerable increase in present capacity. Bids are being asked on general erection contract and award is scheduled to be made soon. Jesse Rosenwald, 525 Market street, San Francisco, is engineer.

East Paterson, N. J.—The Marcal Pulp and Paper Company, recent purchaser of the former plant of the Crew Piece Dye Works, River road, East Paterson, for the establishment of a new paper mill, will be identified with the Marcalus Manufacturing Company, Inc., 829 Newark avenue, Elizabeth, N. J., manufacturer of paper products, and has been organized to operate as an affiliated interest. Property consists of a main one and multi-story building, with several auxiliary smaller structures, on tract of about 10 acres of land. Modernization and improvements are being placed under way, with equipment installation to follow at early date. New mill will be used for the manufacture of a line of standard and special paper goods, with machinery and facilities for large capacity. Cost of entire project is estimated close to $100,000, with equipment.

Cleveland, Ohio—The Crane-Howard Lithograph Company, 1125 Rockwell avenue, manufacturer of paper products, has taken over property at 1435 East Twelfth street, totaling close to 48,000 square feet of floor of floor space and will remodel and equip for expansion. Bids for modernization and improvements in structure are scheduled to be asked at early date. John J. Howard is president.

Meriden, Miss.—The Flintkote Company, 50 West Fiftieth street, New York, N. Y., manufacturer of roll roofing, insulating board products, etc., has engaged the Rust Engineering Company, Clark Building, Pittsburgh, Pa., and Martin Building, Birmingham, Ala., engineer and contractor, to design and supervise erection of new mill on large tract of land near Meridian, recently acquired, as previously noted in these columns. Preparation of plans for main mill, consisting of a one-story structure, 300 x 1200 feet, will be pushed to early completion and work placed under way. New plant will be given over to the production of insulating board and wall board specialties, and in addition to building noted will include a number of smaller units for storage, distribution and auxiliary service, as well as power house, machine shop and other mechanical structures. Plant is being designed for initial capacity of about 5,500,000 square feet of finished board products per month, and will give employment to approximately 300 persons in different departments. It is estimated to cost close to $2,000,000, with machinery.

Rochester, N. Y.—The Eastman Kodak Company, Kodak Park, manufacturer of processed paper stocks, films, etc., has plans under way for new addition to local plant, consisting of a one-story structure, reported to cost close to $100,000, with equipment.

Kalamazoo, Mich.—The Sutherland Paper Company, manufacturer of box board products, news stocks, etc., is reported to have negotiations under way for the manufacture of paper milk containers for the Continental Can Company, New York, N. Y., with contract calling for large output over a period of months.

Toronto, Ont.—The Dominion Corrugated Paper Company, Ltd., 142 Weston road, manufacturer of corrugated paper products, has plans under way for new addition to plant, on which work will begin as soon as company has completed rebuilding and repairs to plant, caused by a recent fire. New unit will be located on adjoining site, and will be one-story, totaling about 10,000 square feet of floor space.

NEW COMPANIES

Watertown, N. Y. — The Fisher-Marchand Paper Company, Inc., has been organized with capital of $10,000, to deal in paper products of various kinds. New company is represented by Charles J. Calkins, Trust Company Building, Watertown, attorney.

Wilmington, Del.—The Ray-Ju Fibres Corporation has been chartered in Delaware, under direction of the Corporation Service Company, Delaware Trust Building, Wilmington, with capital of 10,000 shares of stock, no par value, to manufacture and deal in fiber products of various kinds.

Brooklyn, N. Y.—The Shore Road Paper Corporation has been incorporated with capital of 100 shares of stock, no par value, to deal in paper goods of different kinds. New company is represented by Herman E. Hoberman, 16 Court street, Brooklyn, attorney.

Glatfelter Earns $195,558

The P. H. Glatfelter Company reports for 1939 a net profit of $195,558.81, compared with $110,560.57 for 1938.

Paper Exports Expand

United States exports of paper, paper manufactures and paper base stocks during 1939 were valued at $40,449,194, and were second only to 1929 in the value of shipments during the past 15 years, an analysis of preliminary figures for the past year made by the Forest Products Division of the Commerce Department revealed today.

Exports of paper and its manufactures during December 1939, amounting in value to $3,991,476, were the highest in any month since February 1921. The increase was in part traceable to trade diversion by South American countries, a trend in evidence during the latter part of 1939.

Total imports into the United States of paper and its manufactures for 1939, aggregating $126,793,442, were 12 per cent higher than in 1938. This increase is attributable chiefly to increased imports of newsprint paper, imports of which constituted 90 per cent of the total value of all paper imported into this country.

Preliminary figures on total imports of wood pulp during 1939 indicate a 17.6 per cent increase over imports during 1938, with a 1939 aggregate of 2,026,209 tons.

Of 31 items on the paper and its manufactures export schedule, only 6 failed to show an increase in 1939 over 1938. Exports of writing paper, amounting to 37,972,103 pounds valued at $2,521,919 were the most valuable export, followed by greaseproof and waterproof papers and wrapping paper except kraft a close third.

Contributing to the large export of paper in 1939 were shipments of newsprint paper exports which increased 139 per cent in volume over 1938; uncoated book paper, overissue and old newspaper exports, surface coated papers, paper towels and napkins, boxboard exports, wallboard of paper or pulp, blotting paper and writing paper.

A rise in the imports of newsprint paper was responsible mainly for the general increase in all paper imports in 1939. Imports increased approximately 15 percent by volume in 1939 as compared with 1938. Largest percentage increase by volume was registered in the imports of wrapping paper except kraft, a rise of 179 percent in 1939 as compared with 1938.

Despite conditions in Europe, imports of wood pulp during 1939 were 17 percent higher than in 1938, with particularly heavy imports arriving in the final three months of the year. Imports of mechanical wood pulp, chiefly from Canada, were up 30 percent over 1938, and amounted to 227,954 tons. Imports of unbleached sulphite pulp, most of which comes from Sweden showed a 3 percent decline as compared with 1938, and amounted to 661,090 tons.

for faster

LOADING
•
BEATING
•
DUMPING

The Appleton Vortex Beater is speeding output and cutting costs in many mills. The time of each beating cycle is greatly reduced. Stock is prepared in less time, with less power, in greater volume, at higher consistencies, in half the space and at lower cost . . .

THE APPLETON VORTEX BEATER

Write for descriptive folder . .

THE APPLETON MACHINE COMPANY · APPLETON · WIS

Von Olker-Snell Issue Price List

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 11, 1940—The Von Olker-Snell Paper Company has issued a new price-list card covering bonds, ledgers, mimeograph and duplicator papers, Esleeck's thin papers, Dennison's gummed, Linton's Bristols and Fallulah blanks.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 110 March 14, 1940 No. 11

COMING EVENTS IN PAPER INDUSTRY

Technical Association of the Pulp and Paper Industry, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

American Pulp and Paper Mill Superintendents Association, Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio. June 18-20.

National Safety Council, Paper and Pulp Section, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

BUSINESS AND LEGISLATION

The trend of business activity is again headed upward after a steady decline from the first of the current year. According to the Federal Reserve Board's index, production dropped from a high of 128 in December to 119 in January and for February the index is estimated at 109. This is based on 100 as the average for the years 1923-1925, and is 9 points above the level of last summer, before hostilities began in Europe. In commenting on the figures of the Bureau of Labor Statistics, the Federal Reserve Bulletin for March finds no inflation present in the current economic situation. Wholesale commodity prices in the third week of last month were only 4 points higher than last August.

This report is an indication of price stability and that an undue price rise due to speculative activity created by the European conflict, which was feared, has not occurred. It was also pointed out that the decline in industrial production might be attributed in part to the increase in inventories held by manufacturers, which the Department of Commerce estimated 9 per cent higher in the last half of 1939, and 7 per cent higher at the close of the year. The Reserve Board also pointed out that the volume of new orders received by industrial plants declined in December to below the level of shipments and unfilled orders were reduced from the earlier higher level. But, at the end of 1939, new orders were above the level of last August, and above the level of the previous year.

While business is moderately good at this date it is, of course, below general expectations. Although the Administration has increased purchasing power of millions through WPA, PWA and the AAA, has given labor more economic power, minimum wages and maximum working hours, some 8,000,000 are still unemployed. The most important and the most difficult problem to solve is how to put idle men and women back into industry and trade. A clear presentment of the unemployment situation was given by W. Gibson Carey, Jr., president of the Chamber of Commerce of the United States, before the Bridgeport Chamber of Commerce. Mr. Carey said in part: "Unemployment is verily a cancer in our society and because there is such misunderstanding about its origin and cure. The most pitiful aspect is that the people most directly affected, those without jobs, have been injured irreparably. I charge no one with doing this purposefully. I state only what I am convinced is the fact, that is, we have handled our government-business relationship so stupidly that we have for years had millions of unemployed without any necessity of justifiable reason. We have talked humanitarianism. What we have actually done can properly be called crucifixion.

"Our error can be diagnosed generally by saying that instead of encouraging private business which must be the source of employment, we have done nearly everything which could be thought of to retard it. We have made an attempt to legislate prosperity. This has not worked in this country and it will not work. What I have said is the teaching of history. The bald truth is that attempts at planned economy do not function satisfactorily until and unless capital, labor and the means of production and distribution are fully regimented by government. Such a system you may call Fascism, Communism, Socialism, totalitarianism, planned economy or dictatorship. I call it dictatorship, because that word is anathema to the average American. The descriptive word, however, is not so vital as what actually takes place.

"To solve unemployment we must increase our productivity, not so much of necessities as of luxuries; not so much of consumption goods as of durable products. Furthermore, we must do this under conditions which allow of constant readjustments in production costs and in prices. In fact, a prime essential for the success of our entire economic system is to avoid any fixation by law or other influence of such important elements as wages, salaries, profits or hours of work. The very essence of our trouble for some six years has lain in a misunderstanding in government and among our people of these requirements. Pump priming and the theory of purchasing power as it has been applied have been dis-

astrous. Both of these have had chiefly the effect of supporting consumption goods and of killing long-term confidence on which investment in durable goods always must rest. Government competition has added to the stalemate. Legislation to control costs, directly or indirectly, deals a death blow to any chance for a balanced recovery which would give full employment."

Proposed amendments to the Walsh-Healey Bill, would gradually eliminate competent firms from the field of government contracting, John W. O'Leary, chairman of the executive committee of the Chamber of Commerce of the United States told members of the sub-committee at hearings on March 6. "The most striking proposal in the bill is for a new and extreme form of mandatory black list. It is provided in S. 1032 under consideration as it passed the Senate on July 17, 1939, that any employer against whom the Labor Relations Board has issued an order any part of which has been enforced by a final adjudication in the courts, is to be denied for three years any opportunity to be awarded a contract by any agency of the federal government. Such a provision is repugnant. The National Labor Relations Act itself and through the manner of its administration has inflicted unreasonably severe and often ruinous penalties. To add further punishment to the victims of oppression of the Labor Relations Board would but add further injury to those already suffering under unfair legislation."

Lindsay Wire Weaving Co. to Expand

The Lindsay Wire Weaving Company, Aspinwall avenue, Cleveland, Ohio, manufacturer of wire cloth and other wire goods for the paper industry, etc., has awarded general contract to J. C. F. Shafer Company, Caxton Building, Cleveland, for new addition to plant, for which superstructure will proceed at once. It will consist of a main structure, 37 x 120 feet, and two T-shaped units, each about 30 x 90 feet, to be located in part between two existing buildings at plant. Cost is reported close to $120,000, including equipment, which will provide for considerable increase in present capacity. The structures will be of brick and steel type, and award for structural steel framing has been made to the Bethlehem Steel Company, South Bethlehem, Pa. The Osborn Engineering Company, 7016 Euclid avenue, Cleveland, is consulting engineer, A. F. Crossman is president.

Low Water Curtails Pulp Output

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 11, 1940—Low water in the rivers of Northern New England is making it difficult for the paper mills to grind pulp without power. The situation in Maine is so critical that the State officials have been obliged to stop operation of the plants in order to keep the reservoirs filled. For this reason, the output of ground wood papers has been sharply curtailed.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.6%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.1%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	.....	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	.....	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	.....	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 9 weeks	88.8%	80.0%	66.4%	90.1%	77.2%	67.7%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
January 27	91.6%	January 28	81.4%
February 3	89.5%	February 4	80.7%
February 10	88.2%	February 11	82.8%
February 17	86.7%	February 18	82.6%
February 24	86.6%	February 25	80.6%
*March 2	81.1%	March 4	83.5%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Jan. 27, 1940	Feb. 3, 1940	Feb. 10, 1940	Feb. 17, 1940	Feb. 24, 1940	Mar. 2, 1940
0% to 50%	49	45	46	48	46	45
51% to 100%	253	255	250	242	231	160
Total Mills Reporting	302	300	296	290	277	205

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	....	....	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. Jan. 27, 1940—75%
Week end. Feb. 3, 1940—72%
Week end. Feb. 10, 1940—71%
Week end. Feb. 17, 1940—70%
Week end. Feb. 24, 1940—69%
Week end. March 2, 1940—69%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.
* Preliminary figure.

Paper Box Sales Increases 1 Per Cent

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 4, 1940—February orders booked by reporting members of the Folding Paper Box Association of America, were 5.6 per cent higher than in January and 1 per cent above 1939, preliminary data gathered by the association showed today. The total for the first two months of 1940 was 16.1 per cent above a year ago.

Bookings in the Middle West and Far Western areas made a far better showing than in January, when most of the increase of that month was due to excellent business in the East.

The narrower spread between 1940 and 1939 last month was attributed to the fact that in January, 1939, business was rather slow, leaving the real expansion to develop in February.

A NOVEL WAY TO SAVE MONEY

This interesting old-fashioned mechanical bank, one of a large private collection, is inscribed, "I always did 'spise a mule". When you place a coin in the darky's mouth and press down a lever the mule rears, throwing the darky headfirst against the log. As his head strikes the log the coin is dislodged and falls into the bank through the slot.

THERE ARE NOVEL WAYS, ALSO, TO SAVE WITH CYANAMID PAPER CHEMICALS!

Cyanamid's up-to-the-minute laboratory facilities and technical service will help you save time, trouble and money in the selection and use of the right chemicals for efficient paper production. See Cyanamid for quality, uniformity and prompt delivery of

SIZES
ALUM
AEROSOL* WETTING AGENTS
COATING MATERIALS
SULPHONATED OILS
DEFOAMERS
TAPIOCA FLOUR
FILLERS
and OTHER PAPER CHEMICALS

*Trade-mark of American Cyanamid & Chemical Corporation applied to wetting agents of its own manufacture.

AMERICAN CYANAMID & CHEMICAL CORPORATION
30 ROCKEFELLER PLAZA · NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United State Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Drying

Drying of Paper on the Machine. B. M. Baxter. Paper Ind. Paper World 21: 207-294 (May, 1939). —A monograph.—A.P.-C.

Supplementary Heating of Drying Chambers. Otto Koritnig. Pappen- u. Holzstoff-Ztg. 45, no. 47: 518-519; no. 48:528; no. 49:538 (Nov. 25, Dec. 2, 9, 1938); B.I.P.C. 9:337.—The heating and ventilating installations should always be built inside the drying chambers, because the heat is thus utilized to best advantage. Either steam or hot water can be used for heating and may be supplemented by electric radiation heating. The use and installation of electric heating cables for this purpose is explained in detail. —C.J.W.

The Drying of Coated Paper. Wochbl, Papierfabr. 69, no. 49:1046-49 (December 3, 1938).—Machine speeds for one sided coating have now reached 100 meters per minute, using white colors with 50 to 60 per cent water bright colors up to 80 per cent and with metallic bronzes even 90 per cent water. The drying time ranges from 10 to 40 minutes. Details concerning the coating machine are given. The question of whether the quality of the paper is lessened by increasing the temperature of drying is raised and in this connection it is important to consider the material used for binding the colors, such as casein, animal size or starch. The quality of the air being heated and that leaving the ventilators should be closely regulated. It also seems important that a certain amount of saturated air is used to soften the sheet of paper.—J.F.O.

Dewatering of Pulp. Olaf Quiller. Papir-J. 26, no. 23:312-314, 316, 318, 320, 322, 324 (Dec. 15, 1938); B.I.P.C. 9:322.—A pulp sheet of 7-10 per cent fiber concentration is formed from a 1 per cent suspension in a vat with strainer bottom and applied suction. The sheet is pressed between 60-mesh screens and steel plates until no further change in thickness takes place. It is reputed that, while this gave 41 per cent fiber at 4000 g./sq. cm. pressure, the concentration dropped to 34 per cent when the pressure was released. This swelling of the sheet due to water taken up from the screens is studied in terms of the water held in capillaries of the fibers and in spaces between the fibers. The swelling pressure of cellulose is considered as a function of the gel concentration, and an equation is derived relating these. Sedimentation volume will depend on this swelling as well as on the orientation of fibers, the smallest volumes being shown by parallel fibers. It is calculated that the tension in the capillary water is about 30 g./sq. cm., this acting to compact the sheet. Aging, even wet, and especially extensive drying lead to a loss in water absorption rate and capacity. There appears to be a relation between swelling pressure and the thickness of a pulp sheet.—C.J.W.

Drying Rates for Paperboard. A. E. Montgomery. Paper Trade J. 108, No. 11:44-47 (March 16, 1939).—Caliper and weight appear to have no marked effect on the drying rates. No noteworthy difference is found between the drying rates for chip, test, or straw board, with other conditions being equal. The final moisture content has a definite effect on the overall drying rates. Allowing for correction of steam pressure, the drying rates for board average less than for news print or printing papers, higher than for glassine or absorbent, and about the same as for kraft.—A.P.-C.

Drying Rate for Book and Other Printing Papers. A. E. Montgomery. Paper Trade J. 108, No. 8:107-108 (Feb. 23, 1939).—By use of a questionnaire survey, drying rates have been established for book and printing papers in a manner similar to that done in the past on other classes of paper. The drying rate for book and printing papers averages lower than for news print, but higher than for other classes studied.—A.P.-C.

Tons of Air for Drying Paper. L. G. Janett. Paper Trade J. 107, No. 25:16-18 (Dec. 22, 1938). —A brief discussion of the fundamental guides for designing an air drying system which will have a high drier efficiency.—A.P.-C.

Board Drying with Recirculated Air. Pappen- u. Holzstoff-Ztg. 45, no. 41:450-451 (Oct. 14, 1938); B.I.P.C. 9:337.—Reference is made to modern board drying constructions through which the boards travel either suspended or lying flat and are exposed to recirculated warm air currents in graduated zones. The heated currents sweep uniformly over the entire surface of the boards so that warping of the finished product is avoided.—C.J.W.

Moisture Control in the Traveling Paper Web. Svensk Papperstidn. 42, no. 8:238-239 (April 30, 1939); B.I.P.C. 9:455.—Reference is made to an electrical measuring instrument for the continuous recording of the moisture content in a travelling pulp or paper web. The arrangement of the entire lay-out is according to the Lippke system; the instrument was exhibited by the Swedish firm Leje & Thurne A.B. at the March 1939 meeting of the Swedish Pulp and Paper Association in Stockholm.—C.J.W.

Fillers

"Annaline" a Gypsum Filler for Paper. Anon. Papier 42: 29-33 (Jan., 1939).—A brief discussion of the properties of "annaline' and its use and merits as a paper filler.—A.P.-C.

Annaline, a High-Grade Filler of the Paper Industry. Karl Sonder. Z. Papier, Pappe, Zellulose, Holzstoff 57, no. 6-81-83 (March 31, 1939); B. I. P. C. 9:458.—The occurrence and advantages of annaline, a calcium sulphate filler, are discussed. It has a high degree of whiteness and, among all fillers in general use, decreases least the strength properties of a paper. In order to obtain a paper of a special predetermined strength, it is therefore possible to add larger quantities of annaline than any other filler. It is added in dry condition to the beater, no equipment for preparing a suspension being necessary; a retention of 80-90 per cent is possible with modern sizing methods.—C.J.W.

Use of Colloidal Clays in Paper Making. A. Esme. Papeterie 60:1059-1061, 1109-1114 (Nov. 25, Dec. 10, 1938).—A brief review and discussion of the use of bentonite for increasing retention of fillers, for eliminating rosin spots, for stabilizing and homogenizing colors and pigments, for emulsifying auxiliary products, for deinking waste papers, and for miscellaneous uses.—A.P.-C.

Zinc Sulphide Pigments in the Paper Industry. Hugo Krause, Papier-Ztg. 64, no. 4:66 (Jan. 14, 1939); B.I.P.C. 9:361.—No free sulphidic sulphur compounds are contained in lithopone pigments prepared by modern methods; tests and experience show that lithopone can be safely used as a filler and in coating manufactures without danger of impairing printing inks, such as bronze inks.—C.J.W.

Loading or Filling. Edw. A. Dawe. Paper and Print 11, no. 44, Suppl.:104, 106 (Winter, 1938); B.I.P.C. 9:305.—The author draws attention to the distinction between the terms loading and filling; loading may be regarded as the process of adding mineral matter to the furnish merely for the purpose of increasing weight without imparting any desirable qualities to the paper. The function of fillers is to improve certain qualities of the paper, opacity in particular. The fillers principally used are briefly discussed, with special reference to the danger of an abrasive effect from certain coating or filling materials.—C.J.W.

Air Conditioning

Humidity Control for Converters. B. Offen. Converter 13, no. 5:2-3, 24-25 (May, 1939); B.I.P.C. 9:439.—The importance of proper humidity control in converting plants is pointed out. Any range between 45 and 60 per cent relative humidity is satisfactory, providing the degree of humidity is maintained once the desired point is selected. It is the constant uniformity which is important. Paper storage rooms should be at the same humidity as the press room. Reference is made to the necessity of combining a sufficient quantity of fresh air with the consideration of ideal temperatures and humidities for providing good working conditions for the employees. Air conditioning should be considered a process which will constantly take in fresh air, and will wash, humidify, and condition that air to the proper temperature and humidity.—C.J.W.

Ventilation Problems in the Paper Industry. K. Aschof. Z. Papier, Pappe, Zellulose u. Holzstoff 57, no. 1:4-5 (Jan. 15, 1939); B.I.P.C. 9:375.—Reference is made to the operating principle of a special ventilation system for paper machine rooms and similar localities consisting of a number of hoods installed on the roof; each hood can be adjusted, that is raised or lowered at will; no power is required.—C.J.W.

Foam

Foam Preventatives. Papier-Ztg. 64, no. 17:428 (March 1, 1939); B.I.P.C. 9:448.—Most of the foam preventatives employed are of organic nature, the high-molecular alcohols finding increasing application for this purpose. The addition of a few drops of octyl alcohol, for instance, often gives satisfactory results; its disadvantage, however, is that it evaporates readily when added to boiling solutions. It must then be replaced and the vapors may prove toxic to some workers. Certain organic hydrocarbons with high boiling points are recommended for this purpose, such as the product "Hexurol," whose foam preventing action is not influenced by high temperatures at atmospheric pressure. Since most antifoam agents are sold under fancy trade names, the supplier should be informed with regard to solutions and circumstances under which his products are to be applied; with this information it will not be difficult to make the correct selection.—C.J.W.

Octyl Alcohol. R. K. Kennedy. Paper Ind. Paper World 20; 1170 (Feb., 1939).—Its physical properties are listed, and its use as an anti-foaming agent, more particularly in paper making, is briefly discussed.—A.P.-C.

Mills

Recent Enlargement of Walkiakoski Mills. Leo Toikka. Finnish Paper and Timber J. 20, no. 22:901-902, 904-906, 919-920, 922-924, 926-928 (Nov. 30, 1938).—An illustrated description of the enlarged sulphate and paper mill at Walkiakoski, Finland, is given.—C.J.W.

Industrial Renaissance of the South. Eugene W. O'Brien. Mech. Eng. 61, no. 4:28.-286 (April, 1939); B.I.P.C. 9:411.—In reviewing the industrial progress in the Southern United States with special reference to developments within recent years, one section is devoted to the pulp and paper industry utilizing southern pine.—C.J.W.

Two Old British Mills. Vincent S. Smith. Paper Ind. Paper World 20:959-961 (Dec., 1938).—A brief description of the Golden Valley Paper Mills and of the Woolfold Paper Mills, manufacturers of rag papers.—A.P.-C.

Experimental Pulp Mill of the Central Laboratory. G. K. Bergman. Finnish Paper and Timber J. 21, no. 7A:49-50, 52-53 (April 14-15, 1939); B.I.P.C. 9:471.—An illustrated description of the experimental sulphite and sulphate digesters with auxiliary equipment in the Central Laboratory of the Finnish Cellulose Association in Helsingfors is given.—C.J.W.

Impression from Sulphite Mills in Finland. Axel Ekwall. Svensk Papperstidn. 42, no. 3:52-67 (Feb. 15, 1939); B.I.P.C. 9:373.—As recipient of a traveling scholarship, the author visited 16 sulphite mills, the Central Laboratory at Helsingfors, and the Outokumpu copper mines from where a part of the Finnish sulphate mills receive their liquid sulphur di-

oxide supply. The author summarizes his impressions of Finnish practices under the following headings: mill water, waste liquor, acid making, wood, wood room, digester house, screening, bleaching, drying machinery, instruments and laboratory equipment, and construction of buildings.—C.J.W.

Bengal Paper Mills Jubilee. Indian Print and Paper 4, no. 3:28-30 (March, 1939).—The company was registered in 1889; a brief history of its development is given. It utilizes imported wood-pulp. A large bamboo pulp plant is under construction, whose output will eventually replace imported pulp.—C.J.W.

Lohja-Kotka Company's New Kraft Paper Mill. Finnish Paper and Timber J. 21, no. 7A:73-4, 76 (April 14-15, 1939).—A brief illustrated description of the new kraft paper mill and its installations, including one Yankee paper machine, is given. The mill has an annual output of 5,500 tons of M.G. kraft paper; space has been provided for installing another machine of similar size, when conditions call for an enlargement.—C.J.W.

W. Rosenlew & Co., A. B. Finnish Paper and Timber J. 21, no. 7A:88-90 (April 14-15, 1939).—Recent modernizations of the Björneborg M.G. kraft paper mill with an annual output of 35,000 tons and the sulphite mill with an annual output of about 18,600 tons of bleached sulphite are briefly described and illustrated.—C.J.W.

Annual Report of the Tappi Research Appropriations Committee

During 1939 four requests for research funds were received from TAPPI committees for the purpose of aiding certain projects. All of these requests received the approval of the Research Appropriations Committee and were subsequently granted by the Executive Committee. The funds represented by these grants amounted to $3290 and were distributed as follows:

No. 12. The sum of $1000 was granted the Fundamental Research Committee to continue the project on holocellulose, began in 1936. The immediate objective in the phase of the work to be covered by this grant is to modify some of the physical and chemical properties of holocellulose to make it comparable to bleached chemical pulp. The work is being done by George J. Hajny under the supervision of George J. Ritter at the U. S. Forest Products Laboratory, Madison, Wisconsin. The time required for the completion of this phase of the project is estimated to be one year.

No. 13. The sum of $540 was granted the Materials of Construction Committee (1) to complete a survey of the materials of construction used in kraft mills (omitting the bleach plant), (2) to initiate a survey of the materials of construction used in the bleach plant, and (3) to investigate the use of piping in the pulp and paper industry. This survey is to be undertaken by James A. Lee, chairman of the Materials of Construction Committee and will require about a month. The fund will be used to defray the travelling expenses of the trip. This project will be reported by Mr. Lee at the 1940 Annual TAPPI Meeting.

No. 14. The sum of $1000 was granted to the Fundamental Research Committee to continue a study involving the relation of lignin and associated substances to the measurable physical properties, principally strength, of fiber products. This project was initiated in 1938 and was financed at that time with a TAPPI grant. The work is being done by C. V. Holmberg under the direction of E. C. Jahn at the New York State College of Forestry, Syracuse, N. Y. The present grant will continue the work for one year. A progress report covering this project will be submitted at the 1940 TAPPI Annual Meeting.

No. 15. The sum of $750 to the Fibrous Materials Testing Committee for the purpose of studying the use of hydroxyamines for the determination of cellulose in wood and pulps. The project is being carried out by a graduate assistant under the direction of E. C. Jahn at the New York State College of Forestry, Syracuse, N. Y. The work should be completed in one year.

Although the number of requests for financial aid from TAPPI committees has not been too numerous since these research funds have been made available, it is evident from the nature of the projects supported during the five year period (1935-40) that there is a distinct need for committee assistance with the aid of Association funds. The following summary is given of the projects which have been, or are being, supported by research grants. The names of the sponsoring committees are included also.

Project	Sponsoring Committee
Purchase of pulp classifier to aid in study of mechanical pulp	Mechanical Pulping Committee
A Study of the existence and nature of fibrous membranes	Fundamental Research Committee
Development of analytical method for determination of lignin, Cross and Bevan cellulose, and easily hydrolyzable cellulose on the same sample of wood	Fibrous Materials Testing Committee
Bibliography on microscopy of paper	Microscopical Sub-Comm. of Paper Testing Comm.
Development of method of measuring degree of gelatinization of cellulose and wood	Fundamental Research Committee
A study of the effects of impurities and of alkalinity on the stability of bleach liquor (calcium hypochlorite)	Non-Fibrous Materials Committee
An investigation of the relation of the lignin content to the strength of paper and pressed boards	Fundamental Research Committee
A study of holocellulose with reference to the pulp and paper industry	Fundamental Research Committee
A survey of materials of construction in pulp mills	Materials of Construction Committee
The use of hydroxyamines for the determination of cellulose in wood and pulps	Fibrous Materials Testing Committee

A more complete summary of the projects can be found in the 1939-1940 Year Book, pages 49-50.

This policy of the Executive Committee of the association of placing funds at the disposal of committees to aid them in their activities it is hoped will be continued for the ensuing year.

JOHN L. PARSONS, Chairman

A Correction

In the paper entitled The Drainage Resistance of Papermaking Pulps by W. O. Hisey and C. H. Heigl published in the *Paper Trade Journal* 110, no. 6: 34-40 (Feb. 8, 1940) on page 36, first column, 40th line, change F. to C. after 110 deg.; on page 40, first column, 37th and 40th lines, change "an increase" to "a decrease."

Laboratory Evaluation of Paper Coating Raw Materials*

By C. G. Landes[1]

Abstract

A detailed description is given of laboratory procedures for mixing coating colors and preparing and testing coated paper. Several examples are given illustrating how the data obtained may be useful in evaluating raw materials and in formulating new coatings. Suggestions are made as to improvements needed in the laboratory procedures described.

The last ten years have seen a wide expansion in the use of technical control and research in pulp, paper, and paper coating mills, and considerable progress has been made in the evaluation of materials and processes on a laboratory scale. Paper coaters in particular are fortunate in that relatively simple equipment and procedures are available, at a very reasonable cost, which enable evaluation of coating[2] raw materials fairly accurately and completely.

As there are few complete descriptions of coating material evaluation methods available in the literature *(4, 16)*, it is proposed to cover in some detail an integrated procedure representative of good commercial practice. Much of the material for this paper is not original, but is based on developments made in laboratories throughout the country.

The objects of the presentation are threefold: 1) to describe reasonably satisfactory laboratory methods of making and testing coated papers; 2) to give examples of typical data obtained, and to show their value in evaluating paper coating raw materials; and 3) to indicate suitable lines of attack for future improvements.

Equipment and Materials

The various items of equipment and materials used, followed by detailed suggestions covering the more important items are:

(1) Pigment dispersion setup, with suitable containers and stirrers
(2) Water bath, with temperature control, for cooking adhesives
(3) Thermometers, enclosed paper scale floating type, range about 0-220 deg. F.
(4) Test sieve, U. S. Bur. Stds. No. 100 (100 mesh), brass gauze, about 8 in. diam.
(5) Viscometer, rotating cup or pipette type
(6) Laboratory sheet coater
(7) Hot-air drier, with thermostat, preferably with forced air circulation
(8) Torsion balance, 1-30 g. capacity, accurate to 0.01 g.
(9) Constant temperature and humidity room; (desirable but not absolutely necessary)
(10) Sheet supercalender
(11) Gloss tester
(12) Opacity tester
(13) Color or reflectance measuring instrument
(14) Smoothness tester
(15) Test ink for comparing receptivity
(16) Test waxes
(17) Microscope or magnifier
(18) Standard rawstock, pigments, adhesives, and miscellaneous chemicals

Much of the equipment is already available in most paper mill laboratories. Of course, substitutions may be necessary to suit local conditions, or to make use of lower cost equipment, but such substitutions in many cases can be made without materially affecting the value of the results obtained.

Pigment dispersion equipment must be chosen so as to handle the various pigments that are encountered. Two desirable types are shown in Fig. 1. Figure 1A is a home-made, variable-speed multiple stirrer; constructed from a piece of sheet metal, 1 h.p. motor, speed reducers, pulleys, and drill press chucks.

Standard stainless steel beakers are held against a wooden base by means of rubber bands and hooks. The stainless steel stirrers can be made in any desired style. The single blade stirrer (Fig. 1B) has a blade 3⅞ in. by 1 in., and if set close to the bottom of a beaker of 4⅛ in. inside diam., the dispersion of most pigments is quite satisfactory. The double blade stirrer (Fig. 1C) has been used fairly satisfactorily for mixes containing satin white, but best results with this latter pigment usually are obtained with a horizontal type mixer such as Fig. 1D.

Several makes of these horizontal kneaders or mixers are on the market. It is suggested that a working capacity of not over one quart is desirable, and that the mixer be equipped with stainless steel bowl and interchangeable blades, suitable packing glands, a reversing device, a jacket for steam or water, and a tilting dump mechanism. It is best to try out the mixer before purchase, as some designs may not give proper dispersion with the particular pigments to be used.

In Fig. 2 are shown a regular laboratory water bath used for cooking casein and other adhesives, a rotating cup type viscometer, and a torsion balance for weighing small sheets of paper. Since most coating colors are more or less thixotropic, a true "viscosity" figure cannot be obtained easily with the rotating cup viscometer. Nevertheless such viscosity figures are very useful in controlling coating color properties and various viscosity testing instruments are in quite common use. The most convenient types are those similar to the one shown in Fig. 2, and the "pipette" or orifice type. Examples of the latter are the Ford viscosity cup, used in the

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Member TAPPI, American Cyanamid Company, Stamford Research Laboratories, Stamford, Conn.

[2] "Coating" in this article refers to the application of adhesive-pigment mixtures, or "coating color", to paper intended primarily for printing.

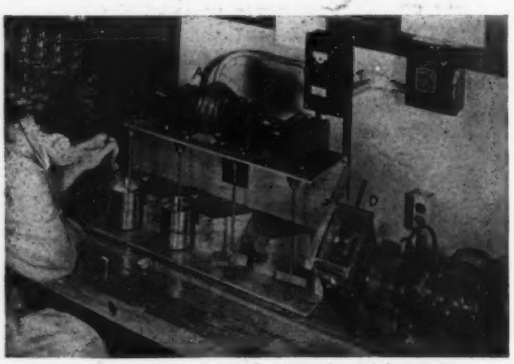


FIG. 1.
Pigment Dispersion Equipment.

paint and lacquer industry, and calibrated pipettes as described by Dunn and Landes *(6)*.

The torsion balance is a great time saver in weighing sheets of raw-stock and coated paper to determine the coat weight. Sheets can be weighed at the rate of 2 or 3 per min., with very good accuracy.

The sheet coater is an important part of the testing equipment. The knife blade type (Fig. 3) is fairly satisfactory but offers room for considerable improvement. Uniformity of spread and coat weight depend on careful adjustment of coating color viscosity and other physical characteristics, and upon the speed of travel of the table, quantity of color applied, etc. Of course, many laboratories construct experimental coaters which duplicate their own application methods as closely as possible.

Coated sheets may be air-dried, or dried in a regular laboratory type of oven. The most flexible and desirable type of oven is one such that forced air circulation is available, with thermostatic control over the desired range.

In most paper mills, where large web supercalenders are available, the small coated sheets will be finished by running them through one nip of the stack, at threading speed. In laboratories located away from paper mills, some calendering device is required, and a small 5-roll sheet supercalender (Fig. 4) is suggested as being quite suitable. The machine shown is the type used for calendering sheets of loft-dried ledger and writing paper, and is equipped with a 4-speed motor giving a range of paper speeds from 220-590 f.p.m. The operating conditions are not quite comparable with web supercalenders in some respects, but very satisfactory results have been obtained by the use of the above sheet calender.

Suitable supplies of standard rawstocks, pigments, and adhesives, and other chemicals, must be kept in stock for use in comparisons with new and special coating materials. Obviously accurate moisture tests must be available on all the raw materials, and the samples should be kept in airtight containers of suitable construction.

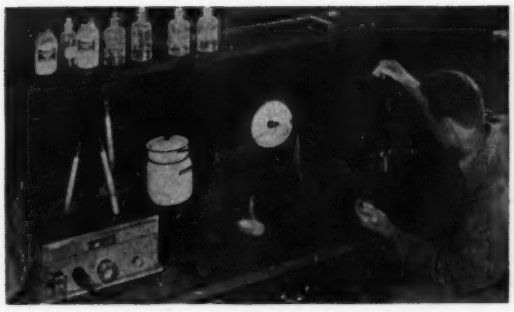


FIG. 2.
Cooking and Testing Equipment: Water Bath, Boiler, Torsion Balance, and Viscometer.

One or more standard coating base stocks should be selected, representative of the principal grades of paper or board in which the laboratory is most interested. Although many properties of the raw-stock are not at all critical as far as laboratory coating trials are concerned, two specifications are of major importance. Regardless of specific quality features, the paper must be uniform, particularly with regard to basis weight, thickness, and surface smoothness. Also, it usually is essential to use a body stock having a fairly hard surface and a good internal strength.

The adhesive requirement of various pigments is one of the most important problems being studied in coating mills. The resistance to picking of a coated sheet during printing is a composite effect of the strength of both the body stock and the coating film. Obviously, if the rawstock is weaker than the coated portion of the sheet, any test of picking quality will give an end point dependent upon the rawstock quality, and lower than the ultimate strength inherent in the coating materials.

Other rawstock properties of some importance include the color, opacity, and basis weight. A sheet of low brightness or reflectance is advantageous when

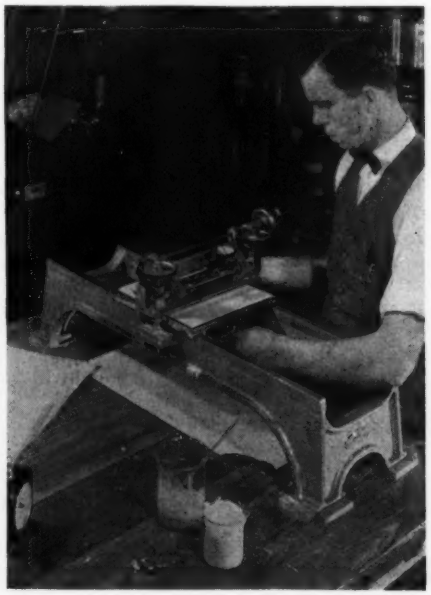


FIG. 3.
Martinson Sheet Coater.

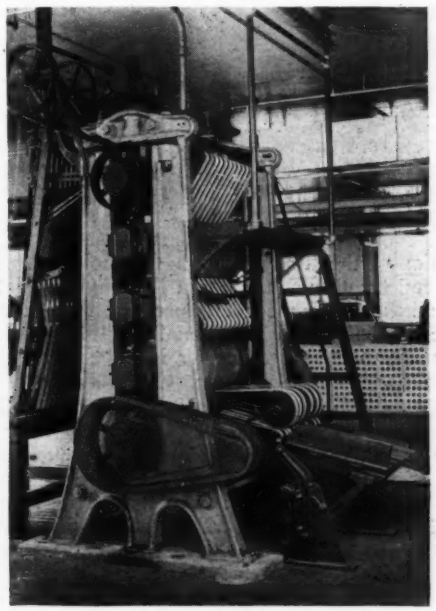


FIG. 4.
Sheet Supercalender.

the hiding power of the pigments is of interest. Sheets of 55-60 lb. basis weight (25 x 38-500) are convenient, as they handle easily on the sheet calender. Needless to say, the grain direction, side coated, and rawstock conditioning must be held constant if dependable results are to be attained.

Color Mixing Procedure

Pigments

The general procedure for dispersing the pigments is as follows: The measured quantity of distilled water is placed in the beaker or mixer, dispersing agents added, if desired, and the stirrer inserted and started. The weighed pigments, with allowance made for moisture, are dropped into the water and stirred for a period of 2 hr., during which time the adhesive is prepared. Occasionally the stirrer is stopped momentarily and the pigment scraped from the blades and sides of the vessel with a stainless steel spatula.

Exact details of the most desirable procedure have to be worked out to suit the requirements of each individual laboratory. A few general hints are given as follows:

(a) The single blade stirrer, Fig. 1B, and 1-liter beaker are handy for all-purpose work, when using a dry pigment weight of 200-300 g.; clays and calcium carbonates disperse very well; satin white tends to stick to the blades.

(b) The double blade stirrer, Fig. 1C, can be used for batches containing a dry pigment weight of 300-400 g.; satin white colors can be dispersed fairly well.

(c) The horizontal mixer, Fig. 1D, should be used when larger batches are desired, or if trouble is experienced in obtaining good dispersion with the other mixers. This type of equipment is necessary if dispersions of high solids content are desired; the principal disadvantage is that, unless several mixers are available, only one batch can be made at a time. The quantity of pigment used must lie within a fairly narrow range if satisfactory dispersion is to be obtained. For a mixer of 1 qt. theoretical working capacity (about 2 qt. total volume), a dry pigment weight of about 300-600 g. is satisfactory.

(d) The dispersion of clays is aided by the addition of about 1 per cent soda ash, on the weight of dry pigment, to the pigment mix at the start of the mixing period. There are several other chemicals which also assist in pigment dispersion.

As a further guide in formulating experimental batches, the following data are given on normally suitable solids contents of both pigment mix and final color mix:

Type of pigment	Range of dry solids contents	
	Pigment mix %	Final color mix %
Coating clay	50-60	40-50
Calcium carbonate (precipitated, very fine particle size)	35-45	30-40
75% Coating clay—25% Satin white	35-40	30-35

The important factors in obtaining proper pigment dispersion are to adjust the solids content, working volume, and stirrer type or speed to the optimum pionts. It is very essential that the pigment mix be thick enough to offer a reasonable resistance to the rotation of the stirrer blades. On the other hand the mix must not be so thick that flow and circulation of the mixture is impeded. Speed of the blades may have to be varied occasionally, although 100-110 r.p.m. for the vertical stirrer is satisfactory in most cases.

Of course, dispersing equipment such as ball mills, planetary mixers, and other types may be used, if desired, although they generally are not so convenient as those described above. The check on adequate pigment dispersion is in the grit test made on the finished coating color. A color which contains over 0.1 or 0.2 per cent dry grit, based on the total dry solids weight, retained on a 100-mesh screen has not been dispersed properly, or possibly contains pigments of inferior quality which cannot be dispersed satisfactorily under any conditions.

Adhesives

The following procedure covers the preparation of casein adhesives only. If other materials, such as starch or glue, are used, the procedure must be modified accordingly. The casein usually is cooked with a water-to-casein ratio of 5 to 1, although occasionally a lower proportion of water may be necessary. The ratio given refers to weight of water to dry casein, and includes water required to dissolve the alkalies.

A tare weight is taken on a glass beaker and thermometer, and the measured quantity of distilled water at room temperature added. The weighed casein, with allowance made for moisture content, is added and soaked for 15 minutes. The mixture is stirred occasionally during the soaking period.

Meanwhile the alkalies, if solids, are dissolved in water and added to the casein while stirring continuously with the thermometer. The mixture is placed immediately in the water bath, which is maintained at about 150 deg. F., and brought up to 140 deg. F. as quickly as possible. Stirring must be almost continuous while coming up to temperature, but need be only occasional thereafter. A watch glass is then placed over the beaker to reduce scum formation.

After 1 hr. of cooking at 140 deg. F. the casein "solution" is taken from the bath and cooled in the air or a water bath. Near the end of the cooling period the beaker, thermometer, and contents are weighed and enough warm water added to make up for evaporation. With the casein solution at from 100-110 deg. F., and when the pigment has been dispersed exactly 2 hr., the desired weight of solution is poured quickly into the pigment mixture. About 25 per cent excess casein is cooked so that the desired quantity can be weighed easily by difference.

Color Mixing and Testing

After the casein is added the coating color mixture is stirred 30 min., stopping the stirrer two or three times to make certain that the blades and beaker sides are perfectly free from lumps of material. At the end of the 30 min., special chemicals, such as preservatives, defoamers, dyes, eveners, etc., are added and the mixture stirred for 30 min. longer.

The color is then screened through a 100-mesh test sieve, and the screened color returned to the agitator until used. The grit on the screen is washed for 2 min. with a stream of distilled water running at a rate of 1000 cc. p.m., and the grit dried to constant weight at 100-105 deg. C. in a weighing bottle. The grit washing procedure may have to be modified in certain cases to obtain a suitable balance between proper removal of the coating color and excessive disintegration of pigment lumps. No mechanical force is used in forcing the grit through the screen. Samples of the screened color are weighed, and dried to constant weight at 100-105 deg. C. to obtain the dry solids content. The color solids test serves as a check on the accuracy of measurement of the various raw materials used in making the batch.

A viscosity test on the color after screening gives valuable information relating to the working qualities of the mixture in question. For any particular laboratory coating machine, a range of viscosities is found by experience which gives best spreading results. As the color usually is made a little on the

heavy side, it is customary to thin down the mix with water to a suitable viscosity, before coating.

Better spreads are obtained, and pinholes eliminated, by addition of an evener to the color at some convenient time such as suggetsed above. The proper quantity and type of evener must be determined by trial. One per cent of soluble pine oil, a commercial oil of about 60 per cent solids containing pine oil and sulphonated castor oil, on the weight of dry pigment present has been found to give very good results.

Coating and Finishing Procedure

Details of color application vary according to the equipment used. The following brief description applies only to the Martinson laboratory sheet coater. The rawstock is cut into sheets 9.5 in. by 10.5 in., and the sheets are weighed to the nearest 0.01 g. on the torsion balance. The basis weight is found from a table, and the weight and batch number are marked on the back of each sheet.

The sheet is coated by fastening it in place on the apparatus, felt side up, pouring on a strip of coating color across the edge of the sheet nearest the coater blade, and immediately pulling the sheet under the blade with a smooth easy motion. The speed best suited for a good spread must be learned by practice. It is essential to obtain an even spread. Results should be judged by both general inspection, and by cutting the sheet into sections and weighing for uniformity of coat weight.

Drying procedure may be varied to fit local conditions. A convenient method is to allow the sheet to air-dry for 4 min., then place it in a forced draft oven at 220 deg. F. for 4 minutes. Interval timers are convenient for checking the drying time.

In adjusting the coat weight, two procedures may be followed: The coated sheets may be held in front of a fan, after taking from the oven, until the weight stops gaining (usually about 5-10 minutes). The basis weight of the coated sheet is taken by means of the torsion balance, and the coat weight obtained by subtracting the rawstock weight. Another procedure is to select about three of the rawstock sheets, dry and obtain the average moisture-free basis weight. The first trial coated sheets are dried moisture-free and the dry coat weight obtained by difference. There is very little difference between the moisture-free and air-dry coat weights, and either method may be used in setting the coater before running the sheets to be tested.

The coat weight is adjusted to the desired value (15 lb. basis 25 x 38-500 is convenient) and a sufficient number of sheets coated for the required tests. Five sheets are used for the physical tests, and several additional sheets are made for visual observation, filing, and to take care of spoilage. The batch of coated and dried sheets is conditioned overnight at 65 per cent R.H. and 70 deg. F., and the coat weight determined before calendering. Of course, on the actual test sheets the moisture-free method is not used.

The sheet calender is adjusted approximately to a standard pressure by using appropriate commercial samples of uncalendered and calendered paper of an identical lot. The uncalendered commercial sheet is run through the sheet calender, and the pressure adjusted until the finish of the paper is equal to that obtained commercially on the same grade. The experimental sheets then are run through the stack without changing the pressure or other conditions, and examined and tested as described below.

Paper Testing and Examination

Of the calendered sheets about 8 to 10 of satisfactory spread and coat weight are selected from each trial batch. Five of the sheets are tested both in the machine and cross directions for gloss, before the sheets are placed in the conditioned test room. The 5 sheets are then conditioned and tested for color or reflectance, opacity, smoothness, ink receptivity, wax pick, and sometimes varnish resistance. A minimum of 10 determinations is made for the optical and smoothness tests, and 5 determinations for the other tests. The remainder of the sheets are examined by eye and with the microscope, and, if desired, can be tested by running proofs on a test press. Actual details of the test procedures may be obtained from the references, and instrument manufacturers' instructions, and are not given here, but a discussion of several points of interest follows.

In the past few years many attempts have been made to develop methods of scientifically evaluating the printing quality of paper *(3, 13, 14)*. An excellent review of the present status of the problem has been published *(15)*. There is a wide diversity of opinion as to the value of laboratory methods of evaluating coated paper as compared with actual use tests. Although certain quality factors can be evaluated only in actual printing, the wide use of preliminary laboratory testing certainly indicates that a good part of the story can be obtained in the laboratory.

Optical properties of importance include color, opacity and gloss, and several instruments are available for measurement of each of these qualities. The Ingersoll glarimeter is quite widely used for gloss measurement, and the Bausch and Lomb-Oxford type of gloss meter has been reported as being very good *(10, 11)*.

Various types of reflectometers or "brightness" testers may be used as a guide in studying color properties. However, a spectrophotometer, such as the General Electric recording instrument, is more desirable in many ways, and makes available information not always obtained by the instruments depending on overall reflectance, or reflectance in certain limited wavelength bands.

Any of the smoothness testers available on the market give a certain amount of information of value. However, there is undoubtedly room for improvement in the measurement of the surface smoothness or contour of the paper, which may not always be proportional to the gloss or "optical smoothness." The softness of paper, and its yield under pressures that might be encountered in printing, are properties that can be measured with at least some degree of success.

Examination of the coated sheet surface by the eye and the microscope, and look-through by eye, are important tests not susceptible to numerical expression. A very good idea of the surface properties of the sheet as affecting printing results may be obtianed by examination under the microscope at a magnification of about 50. Coating spread, streaking, surface mottle, and color and gloss, as observed by eye, are properties that give valuable indications of coating material quality.

Ink receptivity of the coated sheet is a very im-

portant property, and a variety of not too satisfactory methods are available for measuring the receptivity quantitatively. A simple and widely used procedure is by the use of the K & N test inks, as described in several articles *(1, 2, 12)*. This method gives fairly good results when 2 sheets coated with the same type of pigments are compared side by side. The numerical figure obtained by measuring the reflectance of the sheet after removing the ink indicates the rough trend, but duplicate tests do not always agree closely. Moreover, the shade or hue of the paper after the ink has been removed differs when various pigments are present in the coating, and an exact quantitative indication of comparative ink receptivity is not obtained.

Wax tests are widely used, and their value as widely disputed. The problem is covered in an article already mentioned *(12)*, in which it is concluded that for the same grade of paper and coating, made under comparable conditions, the wax tests can given valuable indications of coated paper sizing quality. The two most generally used types of waxes are the Dennison and Case or K & N. The latter type has been expanded by several laboratories to cover a wider range of adhesive or sizing strength. Interesting data covering a comparison of these different waxes are given later.

Varnish and lacquer resistance properties are of interest, and may be evaluated in a number of ways. One of the best is to apply films of normal thickness by a proof press. Also films can be applied by hand rollers or brayers, Bird film applicator, and various draw-down instruments. The results must be compared by visual examination, or by making gloss tests. The gloss and drying qualities of the films are sensitive to variations in film thickness, and none of the methods available are completely satisfactory with respect to obtaining absolutely uniform films.

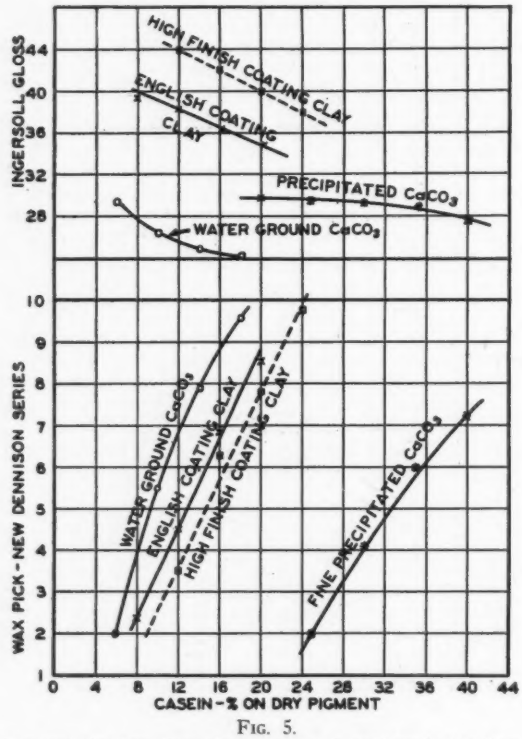


FIG. 5.

Gloss and Dennison Wax Pick Tests on Paper Coated with Several Pigments, and Varying Percentages of Casein.

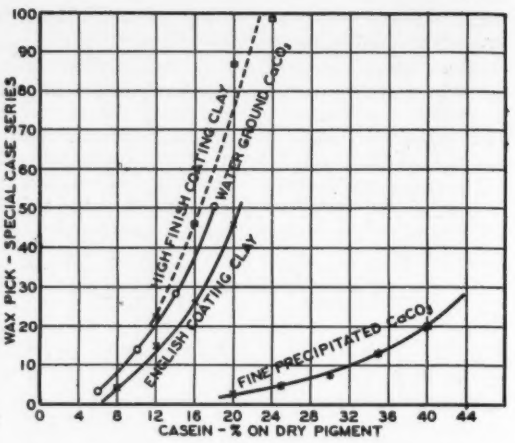

WAX PICK - SPECIAL CASE SERIES
CASEIN - % ON DRY PIGMENT
HIGH FINISH COATING CLAY
WATER GROUND CaCO3
ENGLISH COATING CLAY
FINE PRECIPITATED CaCO3

FIG. 6.

Case Wax Pick Tests on Paper Coated with Several Pigments, and Varying Percentages of Casein.

Typical Results

One of the most important factors in attaining successful and economically sound results in the coating mill is the study of adhesive requirements of various coating pigments. Very little accurate and complete data on this subject have been published in recent years, with a few exceptions *(9)*.

In Fig. 5 are shown curves representing the Dennison wax pick and gloss tests obtained with several widely used coating pigments sized with different proportions of a standard casein adhesive. In Fig. 6 are shown results of wax tests on the same sheets tested with a special series of test waxes corresponding to the Case or K & N type, but covering a wider range. This special series was made up with varying proportions of carnauba and bayberry waxes, the wax number corresponding to the percentage of carnauba wax in the mixture.

An interesting observation is that the Dennison and K & N waxes do not agree in their rating of the casein consumptions of the various pigments. The greatest discrepancies are in the tests on the high finish (fine particle size) coating clay and the precipitated calcium carbonate. These discrepancies emphasize the necessity, as mentioned by others *(1, 12)*, for being very careful in using wax pick tests in specifications for coated printing papers. Assuming that a mill has found that a certain wax or other test is satisfactory for grading its paper for resistance to pick during printing, then charts such as Fig. 5 should be valuable in developing new formulations to obtain any desired sheet qualities.

In Fig. 7 are shown wax pick tests on sheets coated with clay and calcium carbonate pigments, and with mixtures of the two pigments. It will be noted that the coatings containing 50 per cent clay and 50 per cent calcium carbonate show Dennison wax pick properties intermediate between the individual pigments. With these pigments it is indicated as being quite practical to predict the wax pick properties of sheets coated with mixtures of pigments by making appropriate calculations from the data on the individual pigments. However, this may not hold for other pigment combinations.

Comparison of Three Coating Clays

Data covering a comparison of three different coating clays are given in Table I and Figs. 8 and 9. The three clays were sized with 12 per cent casein, and 15-lb. coatings of each applied to two different rawstocks. One rawstock was a fairly hard, bright, all-sulphite sheet, while the other was a softer, darker sheet containing deinked stock.

TABLE I.—COMPARISON OF COATING CLAYS

Trial no.	Clay	Ingersoll gloss, deg.	Bausch & Lomb opacity, %	Bausch & Lomb reflectance, %	K & N ink receptivity[1]	Wax pick test: Dennison	Wax pick test: K & N
	Hard rawstock						
66	English coating.....	37.9	91.5	94.0	31.5	5.0	25
67	Domestic coating "A"	37.6	92.0	94.0	30.5	5.0	25
68	Domestic coating "B"	40.2	92.5	95.0	31.0	5.0	36
	Soft rawstock						
69	English coating.....	39.3	97.0	88.0	28.5	4.2	22
70	Domestic coating "A"	38.9	97.0	89.0	28.0	5.0	23
71	Domestic coating "B"	41.1	97.0	90.5	28.5	4.8	31

[1] Receptivity varies inversely with the percentages given.

A number of interesting features are brought out in the data from Table I. In the first place it will be noted that, although the range of values obtained differs in some cases according to the rawstock used, the same quality differences between the three clays are generally brought out. This illustrates indirectly the accuracy and ease of duplication of results by the methods used. In both series domestic coating clay "B" gave a better gloss, reflectance, and K & N wax test. It was noted that the K & N and Dennison waxes did not show the same trend. This discrepancy has been discussed already, and probably is a result of some inherent difference between the clays.

In Fig. 8 are shown spectrophotometric color curves representative of the sheets mentioned in Table I. These curves give a more complete and valuable indication of the color properties of the three clays then obtained from the data in Table I. The peculiar dip in the curve at the red end of the

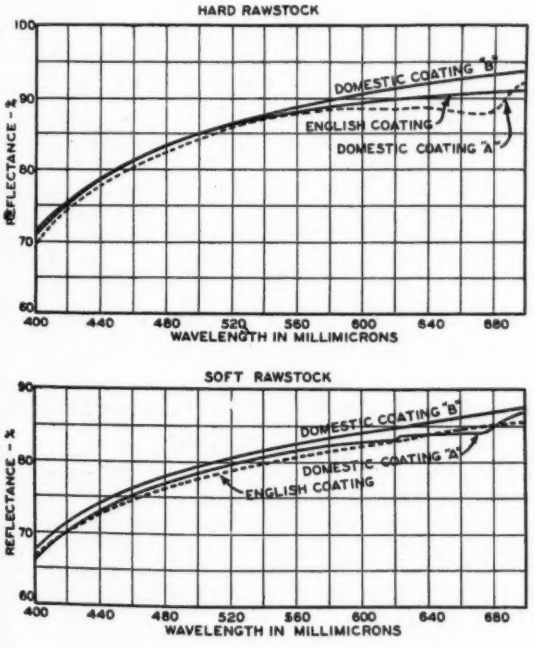


FIG. 8.
Color of Paper Coated with Casein and Three Different Clays.

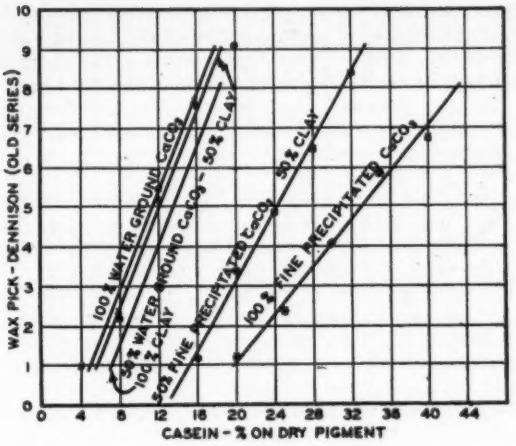

WAX PICK - DENNISON (OLD SERIES)
100 % WATER GROUND CaCO3
50 % WATER GROUND CaCO3 - 50 % CLAY
100 % CLAY
50 % FINE PRECIPITATED CaCO3 - 50 % CLAY
100 % FINE PRECIPITATED CaCO3
CASEIN - % ON DRY PIGMENT

FIG. 7.
Dennison Wax Pick Tests on Paper Coated with Mixtures of Pigments, and Varying Percentages of Casein.

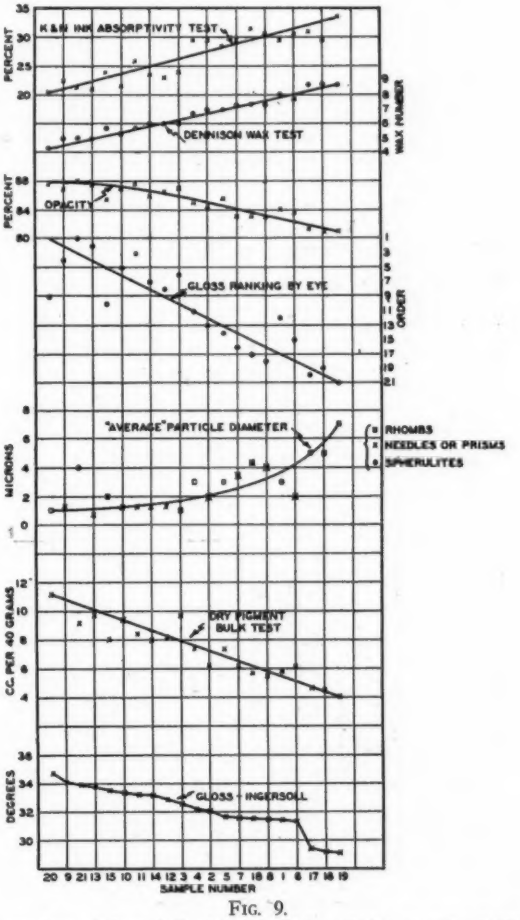


FIG. 9.
Comparison of Several Precipitated Calcium Carbonates; Casein-Pigment Ratio Held Constant for Coating Trials.

spectrum for domestic coating clay "A" might be caused by a dye, and possibly could be used as a means of identifying this particular clay in unknown samples of coated paper. This is assuming, of course, that other dyes were not present in sufficient quantity to conceal the characteristic absorption properties of the dye in the clay.

A Series of Precipitated Calcium Carbonates

An interesting series of tests on a group of precipitated calcium carbonates is covered in Fig. 9. These pigments were prepared under different conditions so as to give a wide range of particle sizes and shapes. With one exception, which can be easily explained, the tests showed a very definite and reasonable correlation between the pigment particle size and the coated sheet properties. This correlation held regardless of whether the individual pigments consisted principally of rhombs, needles, or mixtures of the two.

The particle size dimensions given in this report represent rough estimates for charting purposes, the conclusions drawn being based primarily on the study of photomicrographs of the pigments in question. In the measurements, the actual diameter of the spheres and the shortest diameter of the rhombs (which were nearly equidimensional), were recorded. For the needles, a single linear measurement of the particle would not indicate its volume. Therefore, the diameter of a sphere of approximately equal volume was estimated.

All the pigment samples were sized with 24 per cent casein, and coated and calendered under identical conditions. On the graphs the results are arranged in order of descending Ingersoll gloss. It is evident that the wax test increases as the pigment particle size increases, and the dry pigment bulk, and the paper gloss, opacity, and ink receptivity all vary inversely as

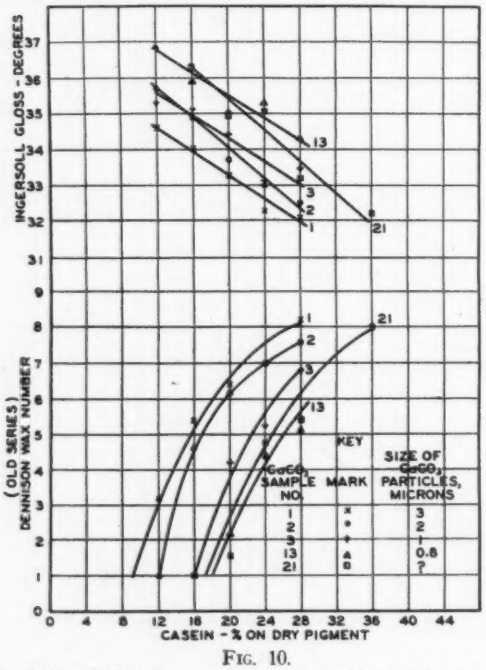


FIG. 10.

Wax Pick and Gloss Tests on Paper Coated with Several Precipitated Calcium Carbonates, and Varying Percentages of Casein.

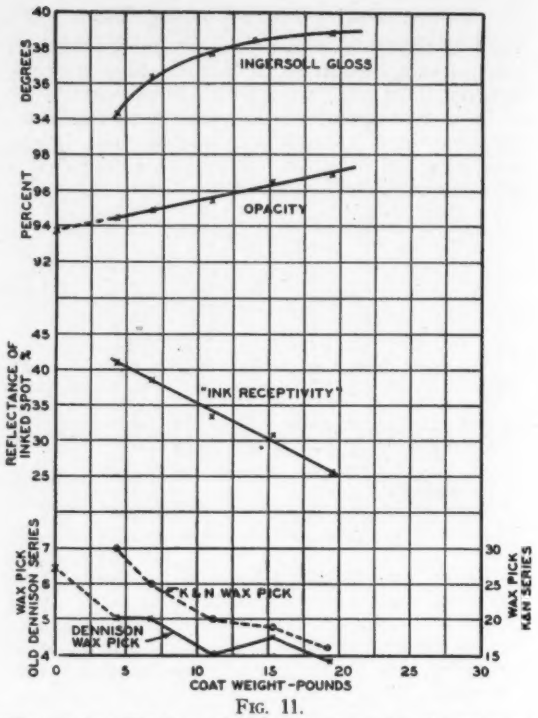


FIG. 11.

Effect of Coat Weight on Coated Sheet Properties—Soft Rawstock.

the particle size. Sample 21, which is composed of spherulites, has properties which would indicate a much smaller particle size than actually observed. This probably is a result of the peculiar construction of the spherulite particles, which might be described as a "cockle burr" effect. It is evident that an overall particle diameter measurement has no significance, because the inner radiating structure has a much larger surface exposure than a solid sphere of equivalent volume.

To check further the results obtained in the above tests, five of the pigments of different particle sizes were selected for a more detailed evaluation. Sheets were coated with mixtures each consisting of 50 per cent calcium carbonate and 50 per cent of a standard coating clay. Various percentages of casein were added to each clay carbonate pigment mixture. The gloss and Dennison wax pick tests are shown in Fig. 10. A very good correlation with particle size was shown, except for Sample 21, which has been discussed previously, and it is evident from the data obtained that it is possible to select a calcium carbonate to give various desired sheet properties, within the limits set up by the inherent nature of the material.

Effect of Coat Weight

The effect of coat weight upon coated sheet properties is of interest both in laboratory evaluation and in commercial practice. Three rawstocks of different degrees of hardness were coated with a standard clay-casein color, the casein-pigment ratio being 13 per cent. Coat weights varying from about 5 to 20 or 30 lb. (25x38-500) were applied to sheets of each rawstock, and the sheets were finished and tested under identical conditions.

The finished sheet test data are summarized in

Figs. 11, 12, and 13. From the standpoint of laboratory evaluation procedure, it is shown that a 15-lb. coat is quite suitable as gloss and wax pick test curves have flattened out to some extent, and the values are not extremely sensitive to slight coat weight variations. The effect of rawstock hardness on wax pick of the coated sheets is demonstrated clearly by the table of data summarized (same samples as shown in Figs. 11, 12, and 13).

	Wax Pick Tests		
	Uncoated rawstock,	Coated paper, 15-lb. coat	
Rawstock	Dennison waxes	Dennison waxes	K&N waxes
A—Soft	6.5	4.2	18
B—Moderately hard..	11.0	5.1	25
C—Very hard.....	16.5	6.6	34

It is recognized in commercial practice that high coat weights may contribute to picking trouble during printing. Based on the data obtained above, the interesting possibility is suggested of reducing adhesive costs by the use of light coat weights, assuming of course that other sheet characteristics can be obtained satisfactorily. Of course, the pronounced effect of coat weight upon gloss, opacity, and ink receptivity has also been shown, and the use of light coat weights requires the use of special formulations to obtain satisfactory quality. Naturally very careful control of coating raw materials and base stock uniformity must be maintained.

Suggested Improvements

The advantages of laboratory evaluation methods such as those described are self-evident, and have been recognized and utilized by many leading paper coating laboratories. It is possible to predict with a fair degree of accuracy the performance of coating pigments and adhesives, and to develop suitable formulations based upon the performance data obtained. Of course, these data must be correlated with actual mill experience until such time as peculiarities of operating conditions in each mill are recognized and proper allowances made.

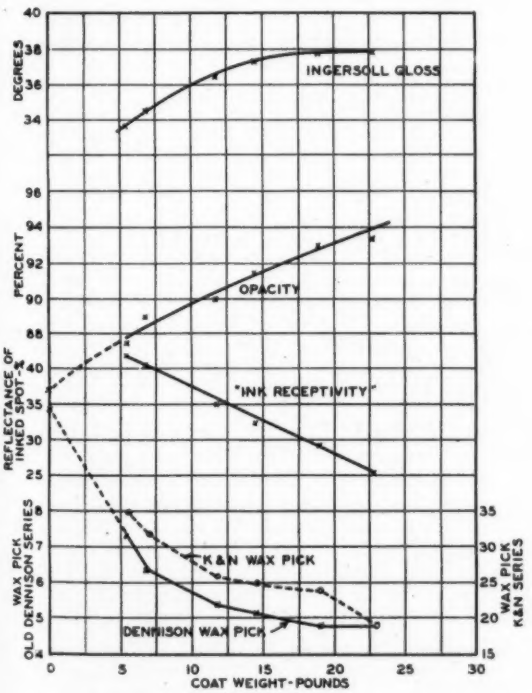


FIG. 12.

Effect of Coat Weight on Coated Sheet Properties—Moderately Hard Rawstock.

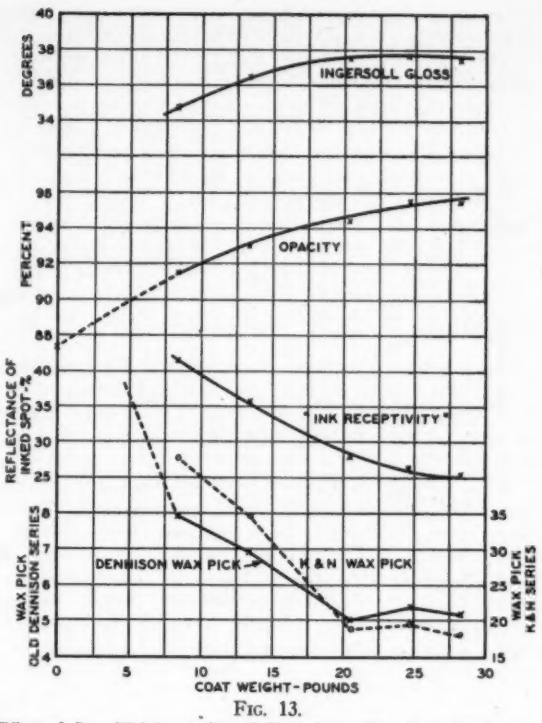


FIG. 13.

Effect of Coat Weight on Coated Sheet Properties—Very Hard Rawstock.

It is agreed that the laboratory evaluation methods in use today have certain limitations and shortcomings. The fields in which improvements are most needed are as follows:

(1) The laboratory coater
(2) Pick test for surface strength
(3) Ink receptivity test
(4) Physical properties of the coating mix as related to spreading and brushing characteristics

Most of the available laboratory sheet coaters are rather sensitive to physical qualities of the coating color. As a result the colors must be adjusted very carefully as to solids content, viscosity and other physical characteristics in order to obtain a reasonably good spread. With some formulations it is impossible to get a satisfactory spread with a knife-blade type coater. In view of the small area involved, it appears as though an improved machine could be designed without making it too complicated or costly. Possibilities include a spraying device, reverse-roll spreader, transfer roll, air-brush spreader, different shaped blades, and others. A semicommercial brush coater has been found valuable in evaluating coating materials, but of course this type of equipment is not convenient for the large amount of preliminary small-scale work usually required.

It has been shown that various types of waxes do not give the same pick test results with different pigments. Improvements in measuring the surface strength of paper should be studied from several viewpoints. One line of attack would be to experiment with new formulations of various waxes, to try

to select a wax combination that would give tests which correlate closely with printing press operating results. However, some technologists believe that this is impossible. This may be true, and perhaps the best test would be one which simulates the printing procedure more closely. It is said that some laboratories are using proof presses, with standard inks or varnishes of varying degrees of tack, as a means of evaluating picking tendency of paper. Such a method should give results agreeing fairly closely with commercial printing results, but unfortunately the equipment is rather expensive and the method complicated and not too convenient. Furthermore, there may be difficulty in standardizing the varnishes satisfactorily.

The ink-smear method of comparing ink receptivity, as used in this work, is suitable only for approximate comparisons. The development of other quantitative methods has included various types of oil absorption tests *(17)* and proof press applications *(3, 14)*. The ink-smear test is a very convenient one, with practically no equipment required for visual comparison of results. It is suggested that the accuracy of the test might be improved by finding a dye that would give less variation in shade as a result of reaction with the pigments or other coating mix constituents. Experiments with fluorescent materials, along the lines recently suggested for testing the water resistance of uncoated paper *(5)*, also might be in order. It is conceivable that the use of fluorescent materials in the ink would permit the measurement of the quantity of ink absorbed, with elimination of difficulties resulting from color variation of either the ink or paper.

The physical properties of coating colors in relation to spreading, brushing, and foaming qualities have received too little attention. It is well recognized that a simple viscosity test does not tell the whole story. Surface tension is important, and many of the substances used in coating practice as eveners and foam-killers have a pronounced effect on the surface tension. The problem is complicated further by the fact that a coating color suitable for brushing may not be at all satisfactory for some other type of application such as reverse-roll or transfer-roll.

Work has been done on this problem in other fields, *e.g.*, vat printing pastes for textiles *(7)*, and it is believed that a study of the flow properties of color under different pressures, together with surface tension data, might lead to a more scientific basis for the control of coating color application difficulties. A rotating cup viscometer, such as Fig. 2, could be used to obtain the fluidity at different rates of shear. Another type of equipment that might give better results is the modified Bingham plastometer *(8)*.

The paper coating industry has broadened out tremendously during the past few years, both as to mechanical methods of applying the coat, and with respect to the constituents of the coating mixture. These changes are making it more important than ever to have available accurate, quantitative methods of evaluating coating materials. It is hoped that paper technologists, in cooperation with the laboratories of raw material and chemical suppliers, will continue to develop improved methods of testing and evaluation.

Acknowledgment

The author wishes to acknowledge the assistance of Messrs. H. M. Annis, N. I. Bearse, and W. A. Kirkpatrick II, who made valuable suggestions concerning the methods described.

Literature Cited

(1) Annis, H. M. *Tech. Assoc. Papers* 18:195-196 (June, 1935).
(2) Annis, H. M. *Tech. Assoc. Papers* 19:46-47 (June, 1936).
(3) Bekk, J. *Zellstoff u. Papier* 12, no. 10:399-403 (Oct., 1932); no. 11:441-447 (Nov., 1932); no. 12:489-493 (Dec., 1932); 13, no. 1:18-22 (Jan., 1933).
(4) Bicking, G. W., O'Leary, M. J., and Shaw, M. B. *J. Research Natl. Bur. Standards*, vol. 5, pp. 1190-1203 (Dec., 1930).
(5) Dreshfield, A. C., Heller, H. F., Nolan, Phillip, and Van den Akker, J. A. *Paper Trade J.* 109, no. 21:33-42 (Nov. 23, 1939).
(6) Dunn, P. S. and Landes, C. G. *Paper Trade J.* 98, no. 17:43-46 (April 26, 1934); *Tech. Assoc. Papers* 17:277-280 (June, 1934).
(7) Glarum, S. N. *Am. Dyestuff Reptr.* 25, no. 6:P150-P157 (March 23, 1936).
(8) Gregory, D. V., Lampert, K. C., and Rassweiler, G. M. *J. Rheology* 1, no. 1:30-45 (Oct., 1929).
(9) Hughes, A. E. and Roderick, H. F., *Paper Trade J.* 109, no. 11:74-79 (Sept. 14, 1939).
(10) Anon. *Paper Trade J.* 104, no. 2:42-44 (Jan. 14, 1937).
(11) Anon. *Paper Trade J.* 104, no. 2:45-47 (Jan. 14, 1937).
(12) Kirkpatrick, W. A. *Tech. Assoc. Papers* 22:322-324 (June, 1939).
(13) Larocque, G. L. *Tech. Assoc. Papers* 22:341-345 (June, 1939).
(14) Prior, P. H. *World's Paper Trade Rev.* 110, no. 5, *Tech. Suppl.*: 119-124 (July 29, 1938); no. 9, *Tech. Suppl.*:129-134 (Aug. 26, 1938).
(15) Simmons, R. H. *Paper Trade J.* 109, no. 21:37-40 (Nov. 9, 1939); *Tech. Assoc. Papers* 22:469-473 (June, 1939).
(16) Sutermeister, E. "Chemistry of pulp and paper making," 2d ed., New York. John Wiley, 1929. pp. 407-409.
(17) Wehmhoff, B U. *Paper Trade J.* 100, no. 6:41-44 (Feb. 7, 1935); *Tech. Assoc. Papers* 18:337-340 (June, 1935).

Manufacture of Uniform Casein*

By W. E. Stringer[1]

Abstract

The purpose of this paper is to show what progress has been made in the manufacture of casein and how the elimination of various technical and mechanical difficulties has resulted in a continuous process of casein manufacture.

Early Methods

Early attempts at the manufacture of casein consisted of allowing a batch of skim milk to develop its own acidity through natural fermentation. In this self-sour process, the skim milk is usually inoculated with lactic acid producing bacteria and by holding the milk at a favorable temperature for bacterial growth, the milk sugar is converted into lactic acid. When sufficient acidity has developed, curdling is effected, and the combination of "curds and whey," well known from the old English nursery rhyme, results. At this point, the curd is broken up either by hand stirring or by heating with steam, or by both. After allowing the curd to settle, the whey is decanted. The curd is then washed with water, and the mass is hand stirred. After allowing the curd to settle, the water is drained. This operation of washing is repeated two or three times. The washed curd is pressed to remove excess water, shredded, dried, and finally ground. Casein of this type is commonly known as lactic casein.

Another batch method of producing casein which is much faster than the self-sour process described above is to effect quick coagulation of the skim milk

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Sealtest, Inc., division of National Dairy Products Corporation, New York, N. Y.

by addition of a mineral acid. The procedure is to heat a vat of skim milk with steam to about 95 deg. F., then carefully distribute a known quantity of hydrochloric or sulphuric acid solution (1:10) and, by means of hand stirring, thoroughly mix the milk and the acid. The result is an immediate coagulation of the milk. The curd is then washed, pressed, shredded, dried, and ground as in the foregoing procedure. Casein of this type is referred to as grain curd casein.

These two methods give a rough idea of how casein may be made. However, it can be readily understood that in any batch operations, either as just described or with modification of those methods, it is impossible to produce a uniform product continuously. The use of a batch operation for the production of casein will involve personal error, nonuniformity of method, and lack of control of the variables involved.

The need of a uniform casein for coated papers led to the development of the Continuous Process.

Temperature and Acidity Control

Elimination of variables is of prime importance in producing casein, and experimentation proved that control of both the precipitating temperature and the acidity at which precipitation of the casein took place was largely responsible for the type of curd produced.

The skim milk entering the system is pumped by means of a centrifugal pump through a thermostatically controlled, internal tubular heater. Close control of the precipitating temperature is thus effected. Skim milk enters the system at a temperature of 110 deg. F. Hydrochloric acid (sp. gr. 1.20) diluted with 4 volumes of water is used. A float valve arrangement for constant level of acid in the acid storage supply provides a means of adding the acid uniformly. A specially constructed mixing device for controlling the curdling of the milk is the most important factor in the process. This apparatus consists of a ceramic cylinder with a slotted opening in the top for the introduction of acid and a side opening through which the heated skim milk is fed. An arrangement of downward sloping baffles within the cylinder insures an instantaneous mixture of acid and milk. The acid, entering the top of the cylinder, hits the top side of a sloping baffle, and the skim milk, entering the side, hits the under side of this same baffle. Thus at the edge of the baffle, contact of acid and milk results in instantaneous mixing, and, by the aid of the other baffles, thorough mixing of the milk and acid takes place, and curdling is thus effected. In order to fully complete the reaction, the flow from the mixing device enters a stoneware box also provided with baffles. A slightly prolonged reaction is effected here so that any unreacted skim milk may be acidulated and complete precipitation of casein obtained. Routine titrations are constantly made to insure uniform acidity.

Separating Curds from Whey

From this point, the mixture of large clumpy curds and whey passes to an inclined screen trough through which the whey drains and from which the curds pass to an inclined screw conveyor. The function of this conveyor is to provide an immediate separation of the curd and whey, because the curds are forced up the conveyor, while the whey drains back into an overflow tank. The drained whey is pumped to other parts of the plant for processing: (1) into whey powder; (2) milk sugar and albumin recovery; or (3) for conversion into lactic acid and its derivatives.

Washing of Curds

At the end of this conveyor, the surface of the clumps of curds are substantially free of whey. They now drop into a beater arrangement, wherein they are shredded into small particles by means of rotating beaters. A stream of water is sprayed on these particles. At the same time, they are forced through a perforated plate onto a second inclined washing conveyor. The washing operation is accomplished by means of a spray of water from a line of nozzles along the side of the conveyor. These spray water on the curds as they are turned over and over in their passage up the conveyor. This intimate washing operation thoroughly removes the impurities in the form of water-soluble salts and free acid, and contributes largely to the low acid, low-ash casein which is produced by this process.

Pressing of Curds

From the washing conveyor, the curds are discharged to a hopper. A novel feature of this hopper is that the back side of it consists of an oscillating plate that forces the curds continuously between a set of rolls. These rolls are arranged vertically and consist of an upper solid roll which is chromium plated and an under perforated brass roll. This operation eliminates the old-fashioned method of hand pressing of the curds and results in a uniformly pressed product having a moisture content of about 50 per cent. The excess water from the curd is removed through the perforated roll to a drain, and the pressed curd which adheres to this roll is removed continuously by means of a wooden knife. Then it passes to an automatic grinding and spreading device. This apparatus continuously discharges the ground curds in a uniform layer onto trays which are then racked on a truck and sent to the tunnel drier. The casein is quickly dried at a temperature of about 180 deg. F. in a rapidly circulating current of air.

The quick method of handling and drying the washed pressed curd is very important, because casein in a moist condition will readily mold if it remains in a warm atmosphere. Too high a drying temperature will cause the casein to case-harden which tends to make the product insoluble and poor in quality. This type of product will also have poor keeping qualities, because the entrapped moisture will promote hydrolysis of the casein. Poor characteristics are also obtained if the casein is dried too long, for casein tends to burn quickly and become brownish in color. It has been found that casein with a moisture content of about 8 per cent is preferable, and it should be a light yellow or creamy white in color.

The dried casein is finally ground to pass a 20-mesh screen and is packed in 75-lb. three-wall paper sacks.

Let us digress at this point and consider the question of casein production as a whole, both from the manufacturer's viewpoint and from the user's viewpoint.

The manufacturer is primarily interested in yield. However, yield cannot be sacrificed at the expense of quality, if a reputation for a dependable product is to be built up. The conditions under which the casein is produced are later reflected in its general working qualities. A good casein should be uniform in color, usually light yellow or creamy white; free from dirt and burned specks; free from objectionable odors; and ground to a uniform mesh. It should be low in ash content, low in free acid, free from the presence of fats, free from foaming tendencies, and easily soluble within the specified degree of alkalinity. From the casein manufacturer's point of view these are the characteristics which determine the suitability of casein for use in coating papers. The paper coater, however, relies on an actual performance test run on a small scale. He desires a low viscosity, high solids-carrying solution which spreads easily without foaming. The highest pigment ratio at a given wax test is the goal, because this results in the best finish.

Consideration of how the mechanical operations of this continuous process tie in with the chemical characteristics of casein production are, therefore, in order.

Control in Manufacture

Precipitating temperature and the acidity at which curdling is first effected involve many factors which have a direct bearing on the final product. With the high precipitating temperature used, the soft curds tend to agglomerate into large clumps and the mixing and shredding apparatus is designed to render the curd amenable to treatment which has already been described. Thus, a high yield of casein may be obtained without impairing the quality of the finished product.

By the use of a high precipitating temperature, less acid is required to precipitate the casein than would be required by the batch method. In the self-sour process, a soft, fine curd precipitates at a *p*H about 4.7. The purpose of the heat is to agglomerate this fine curd. However, while this clumping action is taking place, impurities are being closely bound within the meshes of the curds, and these occlusions cannot be properly removed. Such a casein will be high in free acid, sugar, and ash; and, when dried, the casein will be a highly discolored product. In the continuous mixing device, the hydrochloric acid used to cause precipitation is, at the same time, worked into the curds as they agglomerate. This tends to form soluble milk salts which may be easily removed, and the low ash, low acid, casein produced by this process demonstrates the effectiveness of their removal.

In the batch method of producing grain-curd casein, the hydrochloric acid used is diluted with 10 parts of water to secure more complete distribution of acid throughout the skim milk. Nevertheless, even this procedure tends toward a very nonuniform distribution of acid, with the result that some of the casein is over hydrolyzed, while other portions of the skim milk are unreacted. In this mixing device, however, the apparatus avoids this combination of over hydrolysis and partial reaction.

Prevention of Hydrolysis

Casein is a substance which has a normal tendency to hydrolyze. Prevention of this hydrolysis will permit better results by the user, because hydrolysis of casein reduces its adhesive strength. By the Sheffield process, about thirty minutes is all that is required to convert the fresh skim milk into casein ready to be dried. Compare this to the time consuming and nonuniform methods of the batch operations, and it can be readily realized why casein from these latter methods is nonuniform.

Hydrolysis of casein may take place during storage, and proper care should be exercised to prevent it by the manufacturer as well as by the user. The ideal is attained by complete air conditioning of the storage space for the following reasons. Since casein has the property of absorbing or losing moisture under varying conditions of humidity, a well ventilated room with correct atmospheric control is advisable. Improper storage of casein may result in moisture contents, ranging from 4 to 12 per cent, within the same room. Too low a moisture content is bad in that it tends to render the casein insoluble, while too high a moisture content increases the rate of hydrolysis. Putrefactive odors should be regarded as an indication of hydrolysis and breakdown of the casein, with its resultant loss in adhesive strength. This may be increased by any of the numerous variables mentioned — poor quality casein, too high moisture content, too high free-acid content—and improper storage.

Solvent for Casein

The proper solvent to dissolve casein is a moot question, and no attempt will be made to go into much detail regarding it. The disputes over the proper solvents for casein apparently originate in the difficulties encountered in dissolving low grade caseins of nonuniform properties. Where high grade casein is available no problem is involved. It dissolves easily. The proper solvent is dependent on the quality of the paper being produced. However, it should be stressed that extreme care should be given to the amount of alkali used, and the usual trend is to use too much alkali. The fact, which should be borne in mind is that adhesive strength is due to the casein itself, and when excess alkali is used as solvent, the adhesive strength and keeping quality of the casein is sacrificed. Fifteen per cent of borax is usually recommended as the standard amount of alkali necessary to put casein into solution. However, with the improved methods of manufacturing casein, this appears to be too high a limit, and solubility tests on high quality casein made by a continuous process indicate 10 to 12 per cent solutions of borax are sufficient. The use of alkali in excess of that amount required to dissolve the casein will result in burning or darkening the solution, loss in adhesive strength and loss in working life, regardless of the original quality of the casein.

Conclusion

We have endeavored to show what factors influence the quality of casein. The more important factors include temperature, acidity, and hydrolysis control.

Cooperation between the manufacturer of casein and the manufacturer of coated paper gave a mutual understanding of various difficulties involved, and by an application of these experiences the continuous process was finally evolved.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING MARCH 9, 1940

SUMMARY

Cigarette paper.....277 cs.
Wall paper .....70 bls.
Painting paper.....1 cs., 4 bls.
Printing paper.....21 cs.
Surface coated paper.....32 cs.
Photo material .....280 cs.
Writing paper.....3 cs.
Letter paper .....8 cs.
Miscellaneous paper.....24 cs.

CIGARETTE PAPER

Braunstein Freres, Inc., ——, Havre, 26 cs.
De Manduit Paper Corp., ——, Havre, 174 cs.
Clark Fruitier, ——, Havre, 77 cs.

WALL PAPER

——, *Lynghaug,* Antwerp, 70 bls.

PAINTING PAPER

Pitt & Scott, Ltd., ——, Havre, 4 bls.
Titan Shipping Co., ——, Havre, 1 cs.

PRINTING PAPER

Agfa Ansco Corp., *Henri Jaspar,* Antwerp, 10 cs.
Steiner Paper Corp., ——, Havre, 11 cs.

SURFACE COATED PAPER

Gevaert Co., of America, *Bloomersdyk,* Antwerp, 20 cs.
P. Puttmann, *Bloomersdyk,* Antwerp, 12 cs.

PHOTO MATERIAL

Gevaert Co., of America, *Henri Jaspar,* Antwerp, 280 cs.

WRITING PAPER

Lansen, Naeve Corp., ——, Havre, 3 cs.

LETTER PAPER

Globe Shipping Co., ——, Havre, 3 cs.
Picciotto, Inc., ——, Havre, 5 cs.

MISCELLANEOUS PAPER

American Express Co., ——, Havre, 15 cs.
Coty, Inc., ——, Havre, 9 cs.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., *Mormacdove,* Buenos Aires, 41 bls. rags
Chase National Bank, ——, Havre, 242 bls. bagging.
Castle & Overton, Inc., *Montevideo,* Buenos Aires, 26 bls. old canvas, 152 bls. bagging, 100 bls. old cottons.
A. W. Fenton, Inc., *Exochorda,* Alexandria, 79 bls. old cotton rags.
W. Steck & Co., *Exochorda,* Alexandria, 93 bls. old hessians.
D. Benedetto, Inc., *Exochorda,* Alexandria, 66 bls. white rags.
——, *Exochorda,* Alexandria, 9 bls. old rags.
G. W. Millar & Co., Inc., *Lynghaug,* Antwerp, 100 bls. jute cuttings.
Loumar Textile By Products, *Lynghaug,* Antwerp, 97 bls. old bagging.
W. Steck & Co., *Lynghaug,* Antwerp, 281 bls. flax waste.
National City Bank, ——, Havre, 221 bls. old waste gunny bagging, 169 bls. old waste jute bagging.

HIDE CUTTINGS

Guaranty Trust Co., *Mormacdove,* Buenos Aires, 53 bls.

GLUE STOCK

Darmstadt Scott & Courtney, *Brazil,* Buenos Aires, 214 bls.
Rex & Reynolds, *Nikolina Matkovic,* Marseilles, 50 bbls., 100 bags.

CASEIN

American Cyanamid & Chemical Corp., *Mormacdove,* Buenos Aires, 667 bags, 40,020 kilos.
T. M. Duche & Sons, Inc., *Mormacdove,* Buenos Aires, 500 bags, 25,000 kilos.
Balfour Guthrie & Co., *Montevideo,* Buenos Aires, 424 bags, 25,440 kilos.
H. S. Cramer Co., *Montevideo,* Buenos Aires, 847 bags, 50,820 kilos.
Chase National Bank, ——, Bordeaux, 135 bags.

WOOD PULP

Gottesman & Co., Inc., *Belos,* Gothenburg, 2,030 bls. unbleached prime kraft sulphate, 406 tons.
Perkins Goodwin & Co., *Belos,* Gothenburg, 2,825 bls. dry sulphite, 470 tons.
Bulkley Dunton Pulp Co., Inc., *Belos,* Gothenburg, 125 bls. unbleached prime strong sulphite, 25 tons; 250 bls. prime easy bleaching sulphite, 50 tons; 1,725 bls. prime sulphate, 345 tons.

PORTLAND IMPORTS

WEEK ENDING MARCH 9, 1940

Price & Pierce, Ltd., *Ragnhildsholm,* ——, 1,050 bls. unbleached sulphite.

BOSTON IMPORTS

WEEK ENDING MARCH 9, 1940

American Express Co., *Bloomersdyk,* Antwerp, 8 cs. wrapping paper.
W. H. Hobbs, *Bloomersdyk,* Antwerp, 289 rolls wrapping paper, 57 bls. rags.
Doran & Kurris, *Flying Cloud,* Buenos Aires, 4 bls. old rags.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 9, 1940

H. S. Cramer Co., *Montevideo,* Buenos Aires, 847 bags Casein 50,820 kilos.
Chase National Bank, *Montevideo,* Buenos Aires, 423 bags casein, 25,380 kilos.
E. J. Keller Co., Inc., *Exochorda,* ——, 80 bls. old cotton rags.
F. Whitaker, *Exochorda,* Alexandria, 25 bls. old press cloth.

BALTIMORE IMPORTS

WEEK ENDING MARCH 9, 1940

Congoleum Nairn Co., ——, Havre, 958 bls. rags.
Pagel Horton & Co., Inc., *Vingaren,* Sweden, 290 bls. wood pulp.
M. Sone, *Vingaren,* Gothenburg, 3,050 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 9, 1940

Dixie Jute Bagging Corp., *Bloomersdyk,* Rotterdam, 129 bls. bagging.
W. J. Green & Co., *Bloomersdyk,* Antwerp, 180 bls. flax waste.

LOS ANGELES IMPORTS

WEEK ENDING MARCH 9, 1940

——, *Cascade,* Ocean Falls, 1,786 rolls newsprint.
——, *Delhi,* Shanghai, 90 tons paper stock.
——, *El Capitan,* Ocean Falls, 2,520 rolls newsprint.
——, *Kamakura Maru,* Tokyo, 6 cs. paper.

Britain Controls Paper

The British Ministry of Supply under title of "Control of Paper" announces that "the import of goods prohibition Number Five order 1940 effective March 3, prohibits except under license, importation of the following goods:

"Paper and board made from paper or pulp whether coated or otherwise treated in any manner or not and whether consisting of more than one layer or not, other than strawboard (not including corrugated board), lined or unlined, which is already subject to license under import prohibition order Number One effective January 22.

"Articles made wholly or mainly from paper or from board made from paper or pulp, the following: composite paper and composite paper boards; corrugated paper and board boxes, bags, cartons, cases and other similar containers. The usual exemption is provided for goods despatched to the United Kingdom before the effective date of the order which was issued at the request of the Ministry of Supply to assist in regulating the supply of imported paper and certain paper manufactures on lines similar to those being put into effect for home produced paper and to limit for exchange reasons importation of paper for non-essential purposes.

"Applications for licenses which must be made initially to the Paper Controller, Ministry of Supply, will be considered on their merits having regard to the ultimate use for which the products are intended. Each license will be valid for three calendar months and will be issued in the name of the actual importer only."

Sulphated Oils

"Sulphated Oils and allied products, their chemistry and analysis," is the title of a 163-page book by Donald Burton and George R. Robertshaw. Sulphonated oils are remarkable not only for the variety of materials which may be sulphated but also for the variety of products which may be obtained from one material. The sulphated oils have become increasingly important as wetting and emulsifying agents.

The book contains a historical survey and chapters on raw materials and methods, the chemistry of sulphation, the analysis of sulphated oils, the analysis of sulphated fatty alcohols, the analysis of petroleum sulphonic acids and an index.

The book is published by the Chemical Publishing Company, 148 Lafayette street, New York, at $5 a copy.

May Build Board Mill at Burwaha

WASHINGTON, D. C., March 6, 1940—According to reports, investigations are going on for the establishment of a cardboard and wrapping paper mill in Burwaha with a capital investment of about Rs. 1,400,000, the chief raw material being grass, of which suitable types are found in abundance in the neighborhood, according to a report from the office of the American Trade Commissioner, Calcutta. It has been estimated that a factory producing about 15 tons of cardboard per day would require about 8,000 tons of grass per year, whereas the available supplies of grass have been computed at about 20,000 tons.

H. C. Bradford Heads Pollution Control

KALAMAZOO, Mich., March 12, 1940—Harry C. Bradford, vice-president and secretary of the Rex Paper Company has been named chairman of the Kalamazoo Valley Technical Committee on Steam Pollution Control. Serving on the Committee with Mr. Bradford are E. C. Rutz of the Bryant Paper Company and W. Hathaway of the Kalamazoo Vegetable Parchment Company. At their next meeting on March 14 members of the engineering, and agricultural staffs of the Michigan State College will be present to discuss pollution of the Kalamazoo River.

Ecuador Imports All Its Paper

Since there is no local production of paper in Ecuador all requirements have to be met by imports. The average annual imports of wrapping paper are in the neighborhood of $80,000; book and writing paper including manifold, envelop, drawing and tracing papers amounted to $160,000, and paper for the printing of newspapers and magazines $60,000. The principal suppliers of the latter have been Norway and Sweden, the United States obtained only a very small percentage of this trade. In the finer grades of paper, however, the share of the United States is considerably larger, averaging in the neighborhood of 15 per cent during the past few years.

Wishnick-Tumpeer Opens Dallas Office

Wishnick-Tumpeer, Inc., manufacturer and importer of chemical products, announces further expansion of its growing activities with the opening of a new southwestern office in the Dallas National Bank Bldg., Dallas, Tex.

The new branch marks another forward step of the company, which has risen from a small office in Chicago to a world-wide organization in the short span of 20 years.

This office will service and offer technical assistance to users of such products as carbon blacks, pigments, fillers, oils, acids, asphalts and numerous other industrial chemicals sold under the "Witco" and "Pioneer" brand names."

Donnacona's Operators Expand

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 11, 1940—The new acid accumulator now being installed by the Donnacona Paper Company is expected to go into operation around the middle of the present month, and it will enable the company to expand its production of unbleached sulphite pulp by about 1,000 tons per month. The general operations of the company continue on a more favorable basis than at this time last year.

Japan Increases Pulp Imports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 6, 1940—Imports of wood pulp into Japan proper during the 1939 third quarter included 30,477 short tons of rayon pulp and 6,761 tons of paper pulp, the total of 37,238 tons being substantially above the 21,263 tons imported during the preceding quarter and the 10,802 tons imported during the third quarter of 1938.

UNIVERSAL pH INDICATOR

Useful for measuring pH of sulphite, soda and kraft pulps, of bleach liquors, and of other solutions throughout the pulp and paper industries, this completely self-contained pH potentiometer is direct-reading with either Glass, Quinhydrone or Hydrogen electrode assemblies. Compactly built and readily portable, it is convenient to operate and contains all the traditional L&N reliability and excellence of workmanship. Outstanding advantages: Temperature compensation for the glass or quinhydrone electrodes; a voltage scale as well as a pH scale; full in atmospheres of high humidity; only 5 ml of sample required; small, rugged, sealed glass electrode; mahogany case, strongly built of half-inch material, well finished; separate compartment for batteries. Entire equipment designed to operate for years at full sensitivity and accuracy.

Write for Catalog E-96(1)

LEEDS & NORTHRUP COMPANY, 4967 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

J-E96(7a)

It Pays to Investigate

AVENEX

For Paper and Paperboard Sizing!

• Avenex offers a real *sales plus* for wrappers and cartons prepared for the food industry. By using AVENEX for surface sizing you provide wrappers and cartons that retard rancidity and oxidation, thus helping to retain the original fresh flavor of foods. Such products open a way to greater sales and bigger profit for you. So investigate AVENEX now. Write us for our sales agents without obligation. Remember, AVENEX has been thoroughly tested and its value reported by many State Colleges.

THE QUAKER OATS COMPANY
17 Battery Place, New York City

The Avenex Treatment is unusually valuable for

Butter Liners
Lard and Bacon Wrappers
Milk Bottle Paperboard
Coffee Bag Liners
Pork Loin Papers
Meat Packing Papers
Doughnut and Baking Cartons
Biscuit and Cracker Liners
Cereal Cartons
. . . and other food wrappers

Sales Agents

BENNETT, Inc. CAMBRIDGE MASS.

PULP

BLEACHED SULPHITE
'Stormont' Grade

BLEACHED SODA
'Seagull' Grade

GROUNDWOOD
'Crabtree' Grade

BLEACHED KRAFT
'Tuftare Fibre' Grade

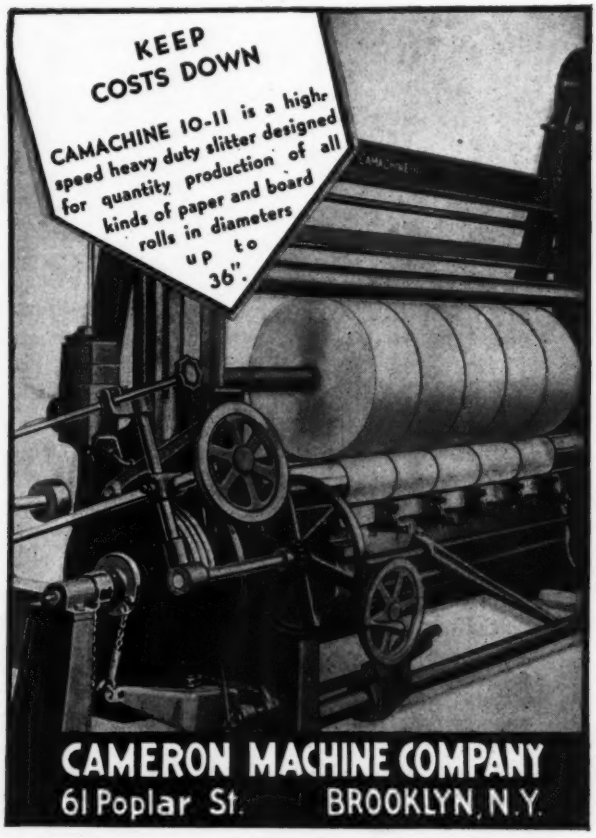
made by

HOWARD SMITH PAPER MILLS LIMITED
407 McGill St., Montreal, Canada

Sulphite & Soda Mill: Cornwall, Ont. *Groundwood Mill:* Crabtree Mills, P.Q. *Kraft Mill:* Windsor Mills, P.Q.

KEEP COSTS DOWN

CAMACHINE 10-11 is a high-speed heavy duty slitter designed for quantity production of all kinds of paper and board rolls in diameters up to 36".



CAMERON MACHINE COMPANY
61 Poplar St. BROOKLYN, N.Y.

New York Paper and Pulp Market Review

Sales of Many Grades of Paper Average About 4.5 Per Cent Below Level of Same Week Last Year—Paper Production Off With Paper Board Unchanged — Pulp Prices Firm — Roofing Rags and Mixed Paper Off.

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1940.

Sales volume in the wholesale paper market for the current week is about equal to business at this period last year in some lines and and has declined approximately 4.5 per cent in other kinds of paper. While general industrial activity continues to decline in most major industries, general business activity, mainly contributed by rising automobile sales and Easter merchandise sales, is a little higher.

This quickening in general business activity is indicated in the index of general business activity for the week ended March 2 which advanced to 96.7 per cent, from 96.1 per cent for the preceding week, compared with 89.5 per cent for the like week last year.

Paper production of 205 mills for the week ended March was estimated at 81.1 per cent, compared with 83.5 per cent for 1939, with 67.3 per cent for 1938, with 89.2 per cent for 1937 and with 79.4 per cent for the corresponding period in 1936.

Paper board production for the week ended March 2 was 69.0 per cent, compared with 69.0 per cent for 1939, with 59.0 per cent for 1938, with 86.0 per cent in 1937 and with 68.0 per cent for the corresponding period in 1936.

Reports from domestic newsprint mills indicate a good level of production is being maintained. Prices at from $49 to $50 per ton are generally considered in the trade as satisfactory. According to the latest reports, retail advertising linage in eighty major markets was up 8.2 per cent for the week ended March 2, above that of the like period last year. New York papers were off 7.3 per cent for the week and linage for the year to date was 4.5 per cent below that of the like period last year.

A relatively small increase in demand for a few grades of paper has been reported during the week. From reports received from many manufacturers' representatives, and general paper merchants, the volume of business is apparently averaging from 4 to 5 per cent below that of the corresponding period last year. Kraft paper production and orders are being well maintained at a good level but output and shipments are a little under that of the like period last year. Prices on all grades of paper are reported unchanged for the week.

Although higher paper prices have been mentioned a possibility, any price advances will depend upon a rise in general business activity and on improvement in the domestic economic situation, in other words upon the normal effect of supply and demand. Higher prices based upon the conflict in Europe and the possibility of sharply curtailed shipments of pulp to this country have been reported, but are currently discounted to a large extent by the peace negotiations now in progress.

Mechanical Pulp

Production of mechanical pulp continues to be reported at a good level. Lack of water has severely curtailed output of groundwood for many months and many mills have been unable to operate on normal production schedules for the past year. Prices on domestic, Canadian and foreign mechanical pulp continue unchanged.

Chemical Pulp

The chemical pulp market is reported in some quarters of the trade as a little easier this week, with few inquiries being received. This is attributed in part at least to the peace negotiations now under way and in a less degree to the small decline in paper production.

Rags

The domestic rag market is reported as quiet this week. Buyers are cautious and export demand is rather slow. The only important change reported this week is lower prices on roofing rags, the No. 1 grade being currently quoted at from 1.25 to 1.35, and No. 2 roofing rags at from 1.05 to 1.15.

Old Rope and Bagging

Mills continue to buy old rope steadily which the trade views as the desire to build up inventories to assure adequate stocks should a further scarcity occur. The reported slow and steady diminishing supply of domestic and foreign No. 1 Manila rope during many months past, which situation continues, is the primary reason for this continuous buying. Rope prices continue unchanged.

The old bagging market continues to report prices as irregular with no important changes from prevailing quotations noted this week.

Old Waste Paper

Waste paper prices have been reduced this week on several grades. Solid flat book is currently quoted at from .75 to .85; white ledger stock at from 1.65 to 1.75. Strictly folded news and corrugated are down to .40 to .45. No. 1 mixed paper is down and currently quoted at from .22 to .25.

Twine

No important change in demand or prices has been reported on any grade of hard or soft fiber twine this week. Sales volume is being maintained at a moderately good level for the season.

Rayonier Announces Pulp Prices

Rayonier Incorporated announces that for the second quarter of this year the prices of its paper grades of pulp are as follows: Purayonier, $100.00; Raybrite, $85.00; Rayselect, $64.00; Raybook, $61.50; Raybond, $61.50; Raywhite, $61.50.

This is an increase of $1.50 per ton on the four last-mentioned types over the first quarter. All prices are based on Atlantic Seaboard ports of call, per ton of 2,000 pounds.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of
ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:
Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia
Charleston, South Carolina

SPEED - QUALITY - ECONOMY
From Raw Stock to Finished Product
WITH
WALDRON
PROCESSING MACHINERY

PRINTING
COATING
EMBOSSING
LAMINATING

GUMMING
CREPEING
DRYING
IMPREGNATING

To Improve Your Product – Write To
JOHN WALDRON
CORPORATION
NEW BRUNSWICK, NEW JERSEY

More than just a
TRADE MARK

EXCELSIOR
KNOX
Woolen Co.
Camden, Me.
FELTS & JACKETS

BUT also a guarantee by men who for 75 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

KNOX WOOLEN CO.
CAMDEN, MAINE.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, March 13, 1940.

BLANC FIXE—Quotations on blanc fixe are firm and unchanged at prevailing market prices. The pulp is currently quoted at $35 per ton, in barrels, at works. The powder is quoted at $50 per ton, in bags, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm and continue unchanged at prevailing market levels. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are a little lower for the week. Standard domestic casein, 20-30 mesh, is currently quoted at from 10½ to 11 cents per pound; 80-100 mesh, at from 12 to 12½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently quoted at from 10½ to 11 cents per pound; French casein at 15 cents per pound.

CAUSTIC SODA—Prices on caustic soda are firm and continue unchanged at prevailing market quotations, under steady buying. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged for the week. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is quoted at from $13.50 to $25 per ton, ship side.

CHLORINE—The demand for chlorine is reported as moderate for the week. Prices are firm and unchanged and conform to prevailing market quotations. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm and prices unchanged at prevailing market quotations. "G" gum rosin is currently quoted at $5.50 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is quoted at $5.45 per 280 pounds, gross weight, in barrels, New York. Gum rosin size is quoted at $2.90 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm under a continued steady demand and current quotations are practically nominal. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake is also nominal.

SODA ASH—Quotations on soda ash are firm and continue unchanged at prevailing market prices. Demand continues steady. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue unchanged at prevailing market quotations. Globe pearl is currently quoted at $2.60 per 100 pounds; special paper starch at $2.70 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm under a steady demand. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.45 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur continue unchanged at prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are unchanged and conform to prevailing market levels. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $23 to $45 per ton.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.00	@	$5.50
Superstandard	4.62½	"	5.00
Northern Standard Wrapping	4.25	"	4.62½
Standard Wrapping	4.00	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	—
White Pat. Coated	67.50	"	—
Kraft Liners	$5.00	"	—
Binders Boards	76.00	"	87.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	" 36.50	32.20	" 37.75
85% Rag	....	"	29.90	" 35.00
75% Rag	23.60	" 27.75	24.75	" 29.00
65% Rag	....	"	21.65	" 26.25
50% Rag	17.55	" 21.50	18.70	" 22.75
25% Rag	14.65	" 17.75	15.80	" 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.95	@ $11.00	$10.10	@ $12.25
No. 2	8.05	" 9.75	9.25	" 11.25
No. 3	7.60	" 9.25	8.50	" 10.75
No. 4	7.30	" 9.00	8.50	" 10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.00
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.00	@	3.40
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	2.95
Strong Unbleached Sulphite	2.75	"	2.85
(On Dock, Atlantic Ports)			
Kraft Bleached	3.37½	@	3.50
Kraft Light & Strong	2.50	"	2.75
Kraft No. 1	2.40	"	2.65
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.00	"	2.37½
(Delivered)			
Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	7.75
Silesias No. 1	4.50	"	4.75
New Unbleached	7.50	"	7.75
Blue Overall	5.00	"	5.25
Fancy	2.25	"	2.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.25	"	3.50

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.25	"	1.35
No. 2	1.05	"	1.15
No. 3 (bagging)	1.50	"	1.60
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

J. Andersen & Co.

Selling Agents

21 East 40th Street

New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp

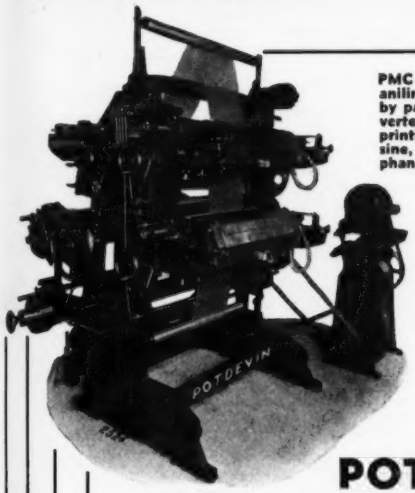
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanoffjärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NEMSJÖ CELLULOSA A.-B.
Sprängverken, Sweden

Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite

AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakia
SVANÖ AKTIEBOLAG
Svanö, Sweden



PMC 2524 POTDEVIN aniline presses are used by paper mills and converters for high quality printing on kraft, glassine, sulphite, cellophane, etc.

POTDEVIN ANILINE WEB PRESSES

Take advantage of the large market for printed and decorated papers by installing a POTDEVIN multi-color, multi-length aniline web press—the press used by leading converters.

Manufacturers of
PAPER BAG & COATING MCHY.

POTDEVIN MACHINE CO.
EST. 1893
1223 38TH ST. BROOKLYN, N.Y.

POTDEVIN

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856

ENGLISH ECCO CLAYS CLAYS

UNIFORM • SUPERIOR • DEPENDABLE

English China Clays Sales Corporation
551 Fifth Avenue, New York City

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging.....	2.25	"	2.50
Manila Rope—			
Foreign	5.00	"	5.75
Domestic	4.75	"	5.00
Jute Threads.....	3.00	"	3.25
Sisal Strings.....	2.00	"	2.25
Mixed Strings.....	.70	"	.85

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	@	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag....	1.00	"	1.10
Solid Flat Book....	.75	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.65	"	1.75
Ledger Stock Colored	1.05	"	1.15
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine— Compressed bales..	1.35	"	1.40
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.40	"	.45
Corrugated	.40	"	.45
No. 1 Mixed Paper..	.22	"	.25

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18½	@	—
White Hemp.....	.18½	"	—
Fine Polished—			
Fine India.....	.23	"	—
Unpolished—			
Box	.14¾	"	—
Paper Makers.....	.15	"	—
Tube Rope.....	.16¼	"	—
Wall Paper.....	.15¾	"	—
Wrapping	.18	"	—
Soft Fiber Rope...	.16¼	"	—
Cotton	.21	"	—

(Hard Fiber)

Medium Java.....	.19	"	—
Mex. Sisal.....	.16	"	—
Manila	.24	"	—
Domestic	4.00	@	4.50
Sisal Rope.....	2.25	"	2.65
Mixed Rope.....	.85	"	1.00
Transmission Rope..	3.00	"	3.50
Foreign	3.50	@	—
Soft Jute Ropes.....	3.00	"	3.50
Jute Carpet Threads.	1.50	"	1.75
Gunny Bagging—			
Foreign	2.85	"	—
Domestic	2.50	"	2.60
Bleachery Burlap....	3.50	"	3.75
Scrap Burlap—			
Foreign	2.60	"	—
Domestic	2.50	"	—
Scrap Sisal.....	2.50	"	2.60
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy..	2.50	"	2.60
New Burlap Cuttings	3.25	"	3.50
Aust. Wool Pouches.	2.90	"	3.00
Heavy baling bagging	2.60	"	2.90
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging	1.10	"	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1...	.08	"	.08¼
New Light Flannelettes	.05	"	—
Silesias No. 1	.05	"	—
New Black Silesias..	.03½	"	03¾
Soft Unbleached....	7.50	"	8.00
Blue Cheviots	.05½	"	.06
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to grades—			
Blue Overalls	.05¼	"	.05½
New Black, soft ..	.03¼	@	.04
Khaki Cuttings	.02½	"	.03
O. D. Khaki	03	"	.03¾
Corduroy	.02¾	"	.03
New Canvas.....	.06¾	"	.07¼
B. V. D. Cuttings...	.07	"	.07¼

Domestic Rags (Old)

(F. o.b. Boston)

Canvas	.04¼	@	—
White No. 1—			
Repacked	—	"	2.75
Miscellaneous	2.50	"	2.75
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues	2.25	"	2.50
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.50	"	1.60
Black Stockings	4.00	"	4.25
Roofing Stock—			
No. 1.....	1.75	"	2.00
No. 2.....	1.60	"	1.65
No. 3.....	1.00	"	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments.	(nominal)
New Silesias	(nominal)

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.04	"	.04½
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached..	.05½	"	.06
Washable, No. 1..	—	"	.04
Blue Overall.....	—	"	.05
Cottons—According to grades—			
Washable No. 2...	—	"	.02
New Blue	—	"	.02
Fancy Percales....	—	"	.03
New Black Soft...	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.04
No. 2 Mixed.....	.03	"	.03¼
Corduroy	—	"	.02½
New Canvas.....	.05½	"	.06
New Black Mixed.	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	2.00	"	2.25
Repacked	2.50	"	2.75
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1..	1.50	"	1.60
Domestic No. 2...	1.35	"	1.45
Roofing Bagging..	—	"	1.30

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.50	@	3.00
Manila Rope.....	3.25	"	3.75
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	1.25	"	1.50
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.30
Wool Tares, heavy..	3.50	"	3.70
Mixed Strings	.75	"	1.00
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard Write	2.25	@	2.30
No 2 Hard White	2.00	"	2.10
No. 1 Soft White	1.85	"	1.90
No. 2 Soft White	1.50	"	1.60
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.50	"	1.60
Ledger Stock, white.	1.40	"	1.45
Ledger Stock, colored	1.10	"	1.20
No. 1 Books, heavy..	.90	"	.95
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.50	"	.55
Container Manila....	.40	"	.45
Kraft Paper.....	1.00	"	1.10
No. 1 Mixed Paper..	.30	"	.35
Straw Board Chip...	—	"	.40
Binders Board Chip..	.40	"	—
Corrugated Board...	.60	"	.65
Overissue News.....	.70	"	.75
Old Newspapers.....	.50	"	.55

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White	1.85	"	2.15
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.30	"	—
Overissue Ledger Stock	1.30	"	1.50
Mixed Ledgers.....	.85	"	.90
No. 1 Books, heavy..	1.00	"	1.10
No. 1 Books, light..	.65	"	.75
Crumpled Stitchless Book Stock.....	.55	"	.65
Manila Env. Cuttings	1.70	"	1.85
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.25	"	1.30
Mixed Papers.....	.35	"	.40
Print Manila.....	.65	"	.70
Container Manila....	.60	"	.70
Old Newspapers.....	.60	"	.65
Paper Wool Strings..	.90	"	1.00
Overissue News.....	1.00	"	1.10
Box Board Chips....	.50	"	.52½
Corrugated Boxes...	.50	"	—
Kraft corrugated boxes	1.05	"	—
New Kraft corrugated cuttings	1.40	"	1.50
Screening Wrappers	.60	"	.70

Bagging

(f.o.b. Boston)

Manila Rope—			
Foreign	5.00	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots.			
No. 1 White .....$	36.50	@	—
No. 1 Tints	37.50	"	—
No. 2 White	26.50	"	—
No. 2 Tints	27.50	"	—
No. 2 Golden Rod..	28.50	"	—
No. 3 White	22.00	"	—
No. 4 White	15.50	"	—
No. 4 Tints	16.50	"	—
No. 4 Golden Rod..	17.50	"	—
Direct mill shipment in three-ton lots.			
No. 5 White .....$	10.40	@	—
No. 5 Tints	11.40	"	—
No. 5 Golden Rod..	12.40	"	—
No. 6 White	9.40	"	—
No. 6 Tints	9.90	"	—
No. 6 Golden Rod..	11.40	"	—
No. 7 White	8.40	"	—
No. 7 Tints	8.90	"	—
No. 7 Golden Rod..	10.40	"	—
Book—			
No. 1 M. F. ..... $	7.75	"	—
No. 2 M. F.	7.25	"	—
No. 3 M. F.	6.60	"	—
No. 1 S. C.	8.25	"	—
No. 2 S. C.	7.75	"	—
No. 3 S. C.	6.25	"	—

Coated Book & Litho

Ton Lots (resale)

No. 1 .....$	12.15	@	—
No. 2	10.50	"	—
No. 3	9.45	"	—
Coated tinted.....	13.20	"	—
Golden Rod.....	14.80	"	—
Wrapping—delivered—			
Rag Brown.....	4.85	"	5.25
White Wrap.....	4.00	"	—
"B" Manila.....	4.90	"	6.15
No. 1 Manila.... $	5.50	@	$6.90
Fiber	5.50	"	6.90
Kraft No. 2.....	5.50	"	6.90

(f.o.b. Cars, Toronto)

News per ton—			
Rolls (contract)..	46.00	"	—
Sheets	54.00	"	—

Pulp

Ground wood.....$	36.50	@	—
Unbleached sulphite.	54.00	"	—
Bleached sulphite...	65.50	"	—
Kraft	47.50	"	—
Soda	58.00	"	—

Old Waste Paper

(In carload lots, f.o.b. Toronto)

Shavings—			
White Env. Cut...	2.40	@	—
Soft White.....	2.00	"	2.15
White Blk. News..	1.35	"	1.50
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	"	1.00
Light and Crumpled Book Stock.....	.80	"	.90
Ledgers and Writings	1.15	"	—
Manilas—			
New Manila Cut..	1.55	"	1.60
Printed Manilas...	.70	"	—
Kraft	1.15	"	—
News and Scrap—			
Strictly Overissue	.75	"	—
Strictly Folded ..	.70	"	—
No. 1 Mixed Paper	.60	"	—

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings..	2.40	@	—
No. 1 Hard White	2.23	"	—
No. 1 Soft White	2.00	"	—
Ledger and Writings	1.20	"	—
Solid Books.....	.95	"	—
Blanks	1.70	"	—
Krafts	1.08	"	—
New Kraft Cuts.....	1.60	"	—
Overissue News.....	.80	"	—
Old Newspapers—			
No. 1 Folded News	.73	"	—
No. 1 Mixed Paper	.63	"	—
Roofing Stocks—			
No. 1	1.25	@	—
No. 2	1.15	"	—